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THE

U. S. NAVAL ASTRONOMICAL EXPEDITION

TO

THE SOUTHERN HEMISPHERE,

DURING

THE YEARS 1849–'50–'51–'52.

Lieut. Archibald MacRae,
Master S. Ledyard Phelps,
Captain's Clerk E. R. Smith,
Assistants.

VOLUME VI.

MAGNETICAL AND METEOROLOGICAL OBSERVATIONS

UNDER THE DIRECTION OF

LIEUT. J. M. GILLISS, LL.D.

SUPERINTENDENT.

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CONTENTS.

Page.

INTRODUCTION—

Observations proposed ix

MAGNETICAL OBSERVATIONS—

ABSOLUTE DECLINATION x

Description of the Declinometer x

Adjustments and observations xi

Experiments to determine zero of the magnetic scale xii

Adjustments of the alt-azimuth instrument xii

Observations to determine the absolute declination xiii

Calculation of the observations . . . . . xiii–xv

DIURNAL VARIATION OF THE DECLINATION xv

The instrument used, and mode of observation xv

Comments on the observed results xvi

TABLE I. *Hours of the day at which the declination magnet attains its easterly and westerly elongations* xvii

TABLE II. *Diurnal arcs described by the declination magnet between its several elongations* xvii

HORIZONTAL FORCE xviii

Description of the unifilar magnetometer xviii

Description of the vibration apparatus xviii

Formulas of reduction, and calculation of the constants . . . . . xix–xxi

Mode of observing, and explanation of the observations xxi

Value of the scale division xxii

Value of $\frac{H}{F}$ *without weights* xxii

Value of $\frac{H}{F}$ *with weights* xxiii

Value of $1 - \frac{\alpha}{86400}$ xxiv

Values of $\frac{\alpha\ \alpha'}{16}$ xxiv

Values of T *and* T$'$ xxv

Value of K xxv

Observations to determine the temperature correction . . . . . xxv–xxvii

Calculation of the temperature co-efficient xxvii

Localities and observers xxvii

INCLINATION xxvii

Description of the inclinometer xxvii

Mode of observation xxviii

Determination of the correction us to defective pivots, &c. xxix

Page.

METEOROLOGICAL OBSERVATIONS—

TOPOGRAPHY OF THE SANTIAGO BASIN xxx

CHANGE OF CLIMATE xxxii

TABLE III *Hours of rain at Santiago de Chile* xxxiii

Other antecedent observations xxxiii

TABLE IV. *Meteorological summary for* 1849 xxxiv

TABLE V. *Temperature, clouds, and rain for* 1849 xxxiv

Probable increase in the annual number of rains xxxv

INSTRUMENTS AND OBSERVATIONS—

Description of the barometer xxxvi

TABLE VI. *Corrections applied to the readings of the barometer, to reduce the observations to* 32° *Fahrenheit* . . . xxxviii

Description of the thermometers xxxviii

TABLE VII. *Equivalents centrigrade and Fahrenheit's thermometer scales* xxxix

Mode of observing the direction and force of the wind xl

Description of the rain gauge xl

Clouds xl

Personnel xl

ABSTRACTS OF AND COMMENTS UPON THE HOURLY OBSERVATIONS OF TERM-DAYS —

TABLE VIII. *Atmospheric pressure at every hour of the day* xli

TABLE IX. *Excess of the atmospheric pressure at every hour above the adopted mean for the month* xlii

TABLE X. *Temperature of the air at every hour of the day* xliii

TABLE XI. *Excess of the temperature at every hour above the mean monthly temperature* xliv

TABLE XII. *Temperature of evaporation at every hour of the day* xliv

TABLE XIII. *Excess of the temperature of the air at every hour of the day above the temperature of evaporation at the same hour* xlv

TABLE XIV. *Mean direction of the wind at every hour of the day* xlvi

TABLE XV. *Mean force of the wind at every hour of the day* xlvii

TABLE XVI. *Mean portion of the sky obscured at every hour of the day* xlviii

MAGNETICAL OBSERVATIONS 1

Absolute declinations at SANTIAGO DE CHILE 3

Diurnal changes of the declination at Santiago 4–18

Declinometer and unifilar observations at short intervals on the first of each month 19–26

Variations of the horizontal force on the first of each month 27–31

Observations to determine the absolute horizontal force 32–117

Calculations of the absolute horizontal force at SANTIAGO 120

Calculations of the absolute horizontal force at LA CANDELARIA 121

Calculations of the absolute horizontal force at CALDERA 121

Calculations of the absolute horizontal force at VALPARAISO 121

Calculations of the absolute horizontal force at HERRADURA 121

Calculations of the absolute horizontal force at WASHINGTON, D. C. 121

Results of the observations of the magnetic inclination at SANTIAGO DE CHILE 124

at LA CANDELARIA, COPIAPÓ, CALDERA, VALPARAISO, *and* HERRADURA 129

Observations of the north pole of the inclinometer on term-days 130

Magnetic term-day observations at WASHINGTON, D. C., *and in* CALIFORNIA, 1851–1855, *communicated by Prof. A. D. Bache, Superintendent U. S. Coast Survey* 131–156

Corresponding changes of the diurnal magnetic declination at MARBURG, *(in Hesse,) by Dr. C. L. Gerling* . . 157

Letter from Dr. Gerling, describing the instrument and mode of observation 159

Diurnal changes of the declination on term-days 161–185

Changes of the declination at short intervals on the first day of each month 186–187

METEOROLOGICAL OBSERVATIONS—

Tri-hourly observations at SANTIAGO DE CHILE, *from November*, 1849, *to September*, 1852 191–355

from day observations 356–370

CONTENT

Page.

TABLE XVII. *Mean atmospheric pressure at the several observation hours of each month* 373

TABLE XVIII. *Excess of the atmospheric pressure at each observation hour above the mean monthly value at that hour* . . 374

TABLE XIX. *Quarterly and annual means of the atmospheric pressure* 375

TABLE XX. *Monthly and annual means of the atmospheric pressure at each observation hour* 376

TABLE XXI. *Mean temperature of the air at the several observation hours of each month* 377

TABLE XXII. *Variation of the monthly temperature at each hour, from the mean derived from all the observations in corresponding months of the several years* 378

TABLE XXIII. *Quarterly and annual means of the temperature of the air* 379

TABLE XXIV. *Monthly and annual means of the temperature of the air at the several observation hours* 380

TABLE XXV. *Mean monthly and annual temperatures, deduced from all the tri-hourly observations* 380

TABLE XXVI. *Mean monthly maxima and minima of the temperature* 380

TABLE XXVII. *Mean daily range of the temperature in each month, from the registering thermometers* 381

TABLE XXVIII. *Showing the days, maxima, minima, and range of the temperature in each month, from the registering thermometers* 381–382

TABLE XXIX. *Mean monthly and annual temperatures, from the maxima and minima* 382

TABLE XXX. *Mean monthly and annual temperatures, from all the observations* 382

TABLE XXXI *Mean temperature of evaporation (wet-bulb thermometer) at the several observation hours of each month* . . 383

TABLE XXXII. *Excess of the mean temperature of the air at the several observation hours of each month, above the mean temperature of evaporation at the same hours* 384

TABLE XXXIII. *Quarterly and annual means of the temperature of evaporation* 385

TABLE XXXIV. *Mean difference between the temperature of the air and that of evaporation at the several observation hours of the four seasons of the year* 386

TABLE XXXV. *Monthly means of the force of the aqueous vapor at the several observation hours* 387

TABLE XXXVI. *Quarterly and annual means of the force of the aqueous vapor at the several observation hours* . . 388

TABLE XXXVII. *Showing the number of days in each month during which the wind blew from each direction at the several observation hours* 388–398

TABLE XXXVIII. *Showing at each observation hour in the several years the number of winds from each direction and the annual means of the same* 399–402

TABLE XXXIX. *Showing at each observation hour of the several months the mean number of days on which the wind prevailed from each direction* 403–404

TABLE XL. *Showing the prevailing wind at each observation hour of the several months* 405

TABLE XLI. *Showing the number of days at every observation hour of each month, during which the wind blew with a certain force* 405–415

TABLE XLII. *Monthly means of the force of the wind at each observation hour* 416

TABLE XLIII. *Quarterly and annual means of the force of the wind* 417

TABLE XLIV. *Monthly mean portion of sky obscured by clouds at each observation hour* 418

TABLE XLV. *Portion of the sky obscured by clouds in quarterly and annual periods* 419

TABLE XLVI. *Aggregate fall of rain in each month, with the monthly and annual means from the same* . . . 420

ERRATA IN VOLUME 6.

Page XLVI. December 2, a. m. For "980°" read "180°."

" XLVIII. Notes. For "*c Three observations*" read "c Four observations."

" 249. November 15, 6 A. M. Dry thermometer "64°. 4" should probably have been recorded "54°.4."

" 250. November 17, 6 A. M. Standard thermometer "57°. 0" should probably have been recorded "67°.0."

" 250. Third line of note to August 9, for "*difference of ranges*" read "differences of range."

MAGNETICAL AND METEOROLOGICAL

OBSERVATIONS, 1849—1852,

BY

THE U. S. NAVAL ASTRONOMICAL EXPEDITION.

INTRODUCTION.

MAGNETICAL OBSERVATIONS, 1849—1852.

In the programme submitted to and approved by the joint committee of the American Philosophical Society and the American Academy of Arts and Sciences it was proposed that the Astronomical Expedition should employ a portion of its time as follows:

"*Magnetical Observations.*—On one day of every month—the term-day of such observatories as continue to keep it—I propose to determine the three elements of the earth's magnetic condition, viz: The declination, inclination, and the intensity of the directive force. To verify the law of diurnal fluctuations of the angle which the directive force makes with the true meridian, observations with the declinometer will, occasionally, be continued throughout the term-day. Neither the appropriation granted by Congress, nor the aid asked for, will justify any extension of these observations, but, if suggested, modifications of times or methods will be cheerfully conformed to.

"*Meteorological Observations.*—A register will of course be kept, and it is proposed that it shall embrace a record of the indications of the barometer; dry, wet, radiating, and registering thermometers; wind-vane; clouds and rain-gauge—the records to be made at 9 A. M. and 3 and 9 P. M., or such other hours as will furnish results from which the mean and extremes of the climate of Chile may be more satisfactorily derived. To determine fully the local law of daily variations, it is in contemplation to make hourly observations throughout the equinoctial and solstitial term-days, as long as the expedition may continue in Chile."

It will be seen in the following pages that the number of observations of both classes was more than doubled. Believing that magnetic observations, at short intervals and with similarly constructed instruments, might lead to most interesting results, it was proposed by Professor A. D. BACHE, the distinguished physicist charged with the United States Coast Survey, that we should record the indications of the declinometer from 17*h*. to 18*h*., and of the horizontal force magnetometer from 18*h*. to 19*h*. Göttingen mean time on the *first* day of each month, unless that day fell on Sunday, and then during the same hours on the *second* day of the month. The observations were to be made as rapidly as possible, say at intervals equal to the times of vibration of the bars, or some multiple of those times. Professor Bache intended to cause similar observations, by at least one party, on each coast of the United States; and it was presumed that both the observatory at Toronto, (Canada,) and the officers of the Commission sent to determine in conjunction with one from Mexico the boundary between that country and the United States, would also co-operate with us.

More than one obstacle intervened to prevent the carrying out of the plan to its full extent by the Astronomical Expedition, nor is it known whether the Toronto observatory or the boundary Commission took part in the series. The observations made under direction of Professor Bache, and those at Marburg, (in Hesse,) instituted by Dr. C. L. Gerling, have been very considerately furnished, and form a most valuable contribution to the interest of the present volume.

There was yet another question, for whose solution more than one eminent magnetician had expressed great desire, namely, the changes of intensity with distance from the centre of the earth; and, as a journey across the Andes would afford stations for the necessary experiments to a height of nearly 13,000 feet above the sea, when the observations of the Astronomical Expedition had terminated in Chile, all the requisite instruments were placed in charge of Lieutenant MacRae, who was instructed to return to the United States across the continent, via Mendoza and Buenos Ayres. He was required to repeat the magnetical determinations at every 3,000 feet elevation, both on ascending the western and descending the eastern slope of the great Andean chain, and at every 100 miles of longitude in crossing the pampas between the two cities named. The results attained by this accomplished and most conscientious officer have already been published, Vol. II, pages 69—82.

Originally the meteorological journal was placed in charge of the junior assistant and Mr. E. R. Smith, who were instructed to make eight records daily, at equal intervals, commencing with 3 A. M. instead of the three periods proposed in the programme. This was continued during nearly a year, but after the return of the former to the United States—in September, 1850—the whole duty was devolved upon the latter, and, of necessity, the 3 A. M. observations were omitted. On several of the term-days, and during a temporary indisposition of Mr. Smith, we were very cheerfully assisted in both magnetical and meteorological observations by Professor Ignacio Valdivia and Don Gabriel Izquierdo, two of the gentlemen named by the Chile government as students of practical astronomy. Occasional notes respecting earthquakes or remarkable phenomena, which had escaped the notice of the regular observer, have been inserted by other members of the expedition, and very generally the initials of the name are appended.

With this brief exposition, I proceed to the account of the several instruments used, and the observations made in Chile. The reader will find other meteorological data in Vol. I, Appendices B and C; and Vol. II, pp. 76—82.

ABSOLUTE DECLINATION.

DESCRIPTION OF THE INSTRUMENTS.

The absolute declination was ascertained on the *term-day* of each month by means of a portable declinometer and an altitude-and-azimuth instrument. The latter has circles of five inches diameter, each reading, by two opposite verniers, to 30″. The object-glass of its telescope is one inch in diameter, and, for distinct vision of near objects, is fitted in a short cell, movable within the tube by rack and pinion. A small magnet, enclosed in a brass box with a glass top, is fitted on the telescope tube for the purpose of placing it in the magnetic meridian. The instrument has two eye-pieces—one direct, the other diagonal, for objects near the zenith—and a rectangular cross of wires at the focus of the object and eye glasses; a tripod stand; a lamp for illumination of the wires at night; and a plummet and adjusting tools, accompany it.

The declinometer consists of an oaken box six inches long, three and seven-tenths inches broad, and four and three-tenths inches deep, with a heavy base resting on three levelling screws. Its top is of thick glass, and the ends have apertures seven-tenths of an inch wide, fitted with parallel glass. That of the front aperture is inserted in a slide capable of inversal.

Its sides are lined with velvet for more effectual exclusion of air-currents, and are removable for manipulation of the magnet.

A glass tube eight inches in length, screwed into the top of the box, carries a torsion circle eight-tenths of an inch in diameter, and divided to single degrees. A suspension pin four inches long, and three-tenths of an inch in diameter, slides through a socket in the centre of the torsion circle, within which it is prevented from turning by a projecting pin fitting in a groove cut down its whole length. The suspension pin may be held at any elevation by a pinching screw on the upper part of the torsion-circle socket, and the fibre to sustain the magnet is attached at an inverted triangular hole cut in its lower extremity.

The lower suspension pin—three-tenths of an inch long, and one-tenth in diameter—has a similar hole at its top. It turns freely within a small milled-head cylinder, having a female screw, by which it may be secured to the stirrup without torsion of the thread. The stirrup consists of a pair of V supports at the extremities of a brass bar one and eight-tenths inches long, and having a screw at the centre to fit the one just mentioned.

The magnet is a hollow cylinder four inches long, and sixty-five hundredths of an inch outside diameter, with an achromatic lens at its north, and a divided glass scale in the opposite end. It is fitted with a light and sliding brass ring to counteract changes of inclination and preserve it horizontal, and two permanent bands to insure uniform position within the stirrup. A concave mirror attached to the back of the box, and movable in all directions, serves to reflect light through the collimating magnet.

For detorsion of the suspension thread, the instrument has a brass plummet and a cylinder of the same weight as the magnet, also fitted with a scale and lens, though the last is not achromatic. There is a weak magnet within the brass cylinder. To check the vibrations of the magnet, a copper damper, with open sides, accompanies each instrument, to be placed within the wooden box. This has apertures in its ends, of one and two-tenths inches diameter, and a space is cut out from the top that it may not disturb the suspension apparatus.

A portable stand is furnished with the declinometer. This has a table top nine inches square, with grooves for the foot-screws of the box, and which may be moved in azimuth or clamped firmly by a capstan-headed screw underneath the centre. A spare tube, a reel of unspun silk, and adjusting tools, also came with it.

ADJUSTMENTS AND OBSERVATIONS.

If the lens and scale of the collimating magnet are accurately adjusted by the maker, th divisions of the latter are most distinctly seen at infini-distance focus, and it matters not at what distance the alt-azimuth instrument is placed. Then the angular values of the divisions may be determined by fixing the magnet, and measuring with the azimuth circle the horizontal angle subtended by any number of the scale intervals. But this accuracy of construction is not always observed by the artist; the scale may not be precisely in the focus of the lens, and consequently, the angle subtended varies with the distance of the instrument by which it is measured. Such defect in the magnet supplied the Astronomical Expedition was not suspected until our return home, when it was ascertained that at two feet the angular value was 2′ 14″, and at four feet was only 2′ 7″. And thus, as the distance between the declinometer and alt-azimuth instrument was never measured at the time of observation, all the determinations of absolute declination are doubtful to amounts whose maxima cannot exceed 25″.

To determine the division of the scale corresponding with the magnetic axis of the collimator magnet, the telescope of the alt-azimuth instrument was directed to its central division, and repeated readings were made in direct and inverted positions of the magnet. There being no subsidiary apparatus convenient by which to ascertain changes of declination occurring during

these experiments, an hour of the day was chosen when there is least variation. The results were as follows:

Experiments to determine zero of magnet scale.

Scale readings.		Means.	Means of 1 and 3, 3 and 5, &c.	Means of 2 and 4, 4 and 6, &c.
Numbers erect.	Numbers inverted.			
45.0	36.7	40.85		
44.7	36.7	.70		
44.5	36.9	.70	40.78	40.70
44.5	37.3	.90	.65	.65
44.5	37.3	.90	.70	.80
40.5	40.8	.65	.90	.90
41.5	39.6	.55	.90	.65
42.0	39.3	.65	.68	.73
41.0	40.7	.85	.40	.50
40.7	40.7	.70	.78	.70
Adopted zero, 40.73.				

After the tenth observation the direction of the alt-azimuth telescope was changed.

This zero was possibly subject to slight changes from temperature, accidental blows to the magnet, &c.; but on both occasions, when carefully tested under nearly the same circumstances, there was no appreciable difference. Throughout the journey across the Andes and pampas of the Argentine republic, Lieut. MacRae adopted 41.0 as the zero, probably because the even division could be noted with greater certainty rather than from actual observed change in the magnetic axis, though the difference from the zero adopted is not greater than would occur between very accurate and very rapid determinations as his, of necessity, were.

Being placed upon its support in the line indicated by the small magnet of the alt-azimuth instrument, and at such elevation that the collimator magnet and telescope of the latter may be in the same horizontal plane, the declinometer requires but two adjustments, namely, to level its base, and to bring the direction in which the force of torsion of the suspending fibres act, accurately into the plane of the magnetic meridian. The first of these is immediately effected by suspending the plummet and turning the foot-screws until the point of the former hangs over the centre of the base, and the suspending thread in the centre of the tube. After the plummet has ceased gyrating, suspend the stirrup and magnet in its place without torsion of the thread, elevate the magnet until the scale divisions are seen distinctly in the telescope, and turn the table top until the central division coincides with the vertical wire. Remove the magnet, introducing the torsion bar with the weak magnet in its place, and when the latter has come to rest, should its vertical plane differ from that occupied by the collimator magnet, estimate the angle formed, (if the scale is out of the field of the telescope,) and turn the torsion circle through an equal amount in the opposite direction, and the middle division is again on the vertical wire. If, on inversal of the bar, the same division remains bisected, the plane of detorsion coincides with the magnetic meridian, and the instrument is ready for use. Otherwise, the zero of the scale must be determined by the same process as that of the collimating magnet already mentioned; and when ascertained, the torsion circle is to be turned, and the azimuth of the telescope changed until such coincidence is perfected.

The alt-azimuth instrument having been carefully levelled, and the line of collimation of its telescope coinciding approximately with the magnetic meridian, the mode of observation is shown in the following transcript from the note-books:

WEDNESDAY, AUGUST 21, 1850.

Locality, a vineyard 1,500 feet E. by N. from the northern extremity of Santa Lucia. Temperature in the shade from 60°.0 to 60°.3; barometer 28.268 inches; attached 58°.2; atmo-

spere hazy, with almost constant *cirrus* clouds. The alt-azimuth instrument was placed within three feet of the collimator magnet.

Observations for magnetic meridian.

Sidereal time, Santiago.	Scale reading.	Mean of azimuth circle verniers.
h. m. s.		° ′ ″
10 35 54.2	50.0	143 53 37
39 46.7	50.0	54 22
Alt-azimuth turned 180°.		
12 21 14.2	50.0	323 58 15
29 12.2	50.0	57 37
31 31.2	50.0	57 37

Observations for true meridian.

Sidereal time, Santiago.	Sun's limb.	Mean of azimuth circle verniers.
h. m. s.		° ′ ″
11 48 4.7	First . . .	275 13 37.5
50 34.4	Second . .	
51 25.7	First . . .	274 19 45.0
53 54.2	Second . .	
Alt-azimuth turned 180°.		
12 0 49.9	First . . .	91 50 30.0
3 22.4	Second . .	
3 43.7	First . . .	6 0.0
6 16.7	Second . .	
6 52.7	First . . .	90 17 15.0
9 27.2	Second . .	

The latitude of the station, time of observation, and polar distance of the sun or a star being known, its true azimuth is readily computed by the following formulas:

$$\text{tang } \tfrac{1}{2}(A+V) = \cot \tfrac{1}{2} P \frac{\cos \tfrac{1}{2}(\pi-\varphi)}{\cos \tfrac{1}{2}(\pi+\varphi)}$$

$$\text{tang } \tfrac{1}{2}(A-V) = \cot \tfrac{1}{2} P \frac{\sin \tfrac{1}{2}(\pi-\varphi)}{\sin \tfrac{1}{2}(\pi+\varphi)}$$

$$A = \tfrac{1}{2}(A+V) + \tfrac{1}{2}(A-V),$$

in which—

A represents the true azimuth counted from north.
V " the angle at the sun or star.
P " the hour angle at the pole.
π " the polar distance of the sun or star.
φ " the co-latitude of the place of observation.

If the azimuth be reckoned from the south, it must be subtracted from 180°; and when φ exceeds π the negative sign is to be used.

Usually the altitudes of the sun's upper and lower limbs were measured alternately with the horizontal angles.

In such cases, and without knowledge of the time of observation, the true azimuth may be calculated with like facility. For if φ and π have the same signification as in the preceding formulas, and the true zenith distance of the object be represented by Z,

$$2k = Z + \pi + \varphi, \text{ and}$$

$$\text{Cos}^2 \tfrac{1}{2} A = \frac{\sin k . \sin (k + \pi)}{\sin Z . \sin \varphi}$$

Deducing the true azimuth (A,) in accordance with the formulæ, from the first observation of the preceding series, as the assumed longitude of Santiago is $4^h.\ 42^m.\ 33^s.8$ west of Greenwich, the apparent time or hour angle (P) corresponding to $11^h.\ 49^m.\ 19^s.55$ sid. time, is $1^h.\ 47^m.\ 32^s.55 = 26°\ 53'\ 8''.3$, at which instant the sun's north declination was 12° 4′ 49″.7. The latitude of the station is 33° 26′ 25″.9 south.

Hence—

$\frac{1}{2}$P = 13° 26′ 34″.1 $\quad \pi$ = 102° 4′ 49″.7 $\quad \varphi$ = 56° 33′ 34″.1

	° ′ ″			
π =	102 4 49.7	$\frac{1}{2}$P = 13 26 34.1	log. cot = 10.621560	log. cot = 10.621560
φ =	56 33 34.1			
$\pi - \varphi$ =	45 31 15.6	$\frac{1}{2}(\pi - \varphi)$ = 22 45 37.8	log. cos = 9.964792	log. sin = 9.587576
$\pi + \varphi$ =	158 38 23.8	$\frac{1}{2}(\pi + \varphi)$ = 79 19 11.9	log. cos = 9.267932	log. sin = 9.992410
			$\frac{1}{2}$(A + V) = 11.318420	$\frac{1}{2}$(A − V) = 10.216726

	° ′ ″
tang $\frac{1}{2}$(A + V) =	87 14 59.2
tang $\frac{1}{2}$(A − V) =	58 44 14.2
∴ A =	145 59 13.4

Calculating the other observations in like manner, we obtain the results embodied in the following table:

Sidereal time, Santiago.	Sun's true azimuth.	Angle with meridian.	Azimuth circle reading.	Circle reading, true meridian.	Means.
h. m. s.	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
11 49 19.55	145 59 13.4	34 0 46.6	275 13 37.5	309 14 24.1	309 14 22.0
52 39.95	145 5 24.0	34 54 35.0	274 19 45.0	20.0	
12 2 6.15	142 36 5.7	37 23 54.3	91 50 30.0	24.3	
5 0.20	141 51 21.7	38 8 24.0	91 6 0.0	24.0	309 14 22.0
8 9.95	141 2 57.2	38 57 2.8	90 17 15.0	17.8	

The circle reading for the true meridian being the same in both positions of the telescope, is a proof that the line of collimation of the latter had been properly adjusted. Had the zero division of the collimator magnet been observed, the difference between this true meridian and the circle reading, when the telescope was directed to that zero, ($\pm$ 180°,) is the angular value of the absolute declination at that time. But as division 50.0 was bisected by the vertical telescope wire instead of 40.7, which was found to be the zero, a correction for 9.3 divisions, or 20′ 13″.6, becomes necessary. The alt-azimuth instrument being to the north of the magnet, and the numbers on the scale of the latter erect—as in the present instance—increasing numbers denote increasing easterly declination. The angle which was observed is, therefore, too small, and the circle reading for the magnetic meridian requires to be increased. Thus for 10*h*. 35*m*. 54*s*.2 sid. time, equivalent to 0*h*. 37*m*. 12*s*.9 mean time Santiago—

	°	′	″
Mean of azimuth circle verniers + 180°	= 323	53	37.0
Correct for zero	+	20	13.6
Magnetic meridian	324	13	50.6
True meridian	309	14	22.0
Absolution declination EAST	14	59	28.6

The observations at Santiago, commencing with October, 1850, were made by Mr. Phelps, and all of them have been calculated by him; the others were made by myself.

The remarkable differences at occasional consecutive dates between calculations of the absolute declination, made it necessary that every step of the attained results should be minutely scrutinized. After the most careful examination, no good reason could be found for their rejection. The final result given is deduced from several measures which have been computed independently, and are most accordant with each other; and thus they must be considered entitled to equal confidence with those apparently less discrepant.

The computations were made by Assistant Daniel Major, and the revisions by Lieutenant Phelps and myself.

DIURNAL VARIATION.

After completing the experiments for absolute elements, the instruments were re-conveyed to our residence, nearer Santa Lucia, and the unifilar magnetometer was mounted under the corridor of an inner court, where changes of the declination were observed throughout the term-day, commencing at 10 P. M., mean time Göttingen. This instrument will be found described in the introduction to the observations for determining the absolute horizontal force.

It was always set up on the same spot, and the plane of detorsion of the suspension thread was made to coincide with the magnetic meridian, when the central division of the scale was bisected by the wire of the reading telescope. The verniers to the azimuth circle were read then, and at the close of observation, to ascertain whether the instrument had remained unchanged. The observed changes from the magnetic meridian, published in the following pages, are given in scale divisions whose value was found by reading the azimuth circle verniers when the central division was bisected by the telescope wire, then quickly turning the brass plate carrying the box with the magnet, by means of the tangent screw, until another point of the scale came under the wire and reading the verniers again. As no change of declination will probably have occurred in the instant required for this, the angular value of one division is equal to the arc described, divided by the number of such divisions between the two points seen

under the telescope wire. By repetition of such measures the angular value may be determined with any required accuracy. The ascertained value is 1′.00896.

To obtain the actual variations of the declination the observed changes from the magnetic meridian in scale divisions must be multiplied by the arc value corrected for the ratio of the torsion force of the suspending fibres to the earth's directive force, or by the coefficient $a\left(1+\frac{H}{F}\right)$. The value of $\frac{H}{F}$ is determined by turning the torsion circle of the suspension tube through two or more large angles, (for example 90°,) and noting the corresponding differences of scale reading; then if w equals the mean of the former, and u that of the latter in angular measure,

$$\frac{H}{F}=\frac{u}{w-u}$$

The same suspension fibre was used for the horizontal force experiments and subsequent observations of diurnal variation, and the value of the coefficient $\frac{H}{F}$ for each day will be found with the series first named, and printed on pages 120–123.

There were vertical iron bars to the windows within 20 feet, and iron fastenings to doors within half that distance of the instrument, but their influences on the magnet were constant, or, at most, were variable only by differential inductive changes, produced by the earth—quantities probably too minute for appreciation with our means.

COMMENTS AND ABSTRACTS.

Ordinarily, the north end of the declination magnet, then at its westerly limit, begins moving to the eastward at 9*h*. 0*m*. A. M. mean time, Santiago. This hour varies with the season of the year, being as early as 8*h*. 17*m*. in spring, and as late as 9*h*. 53*m*. in winter. Taking an average of the whole year, its maximum of easterly deviation is reached at 1*h*. 45*m*. P. M., the angle described in the intermediate time being 6′.88. In summer, the period of the maximum is retarded about 18*m*., but in winter it is anticipated a like interval, spring being 2*m*. later, and autumn 5*m*. earlier than the annual mean. The angular fluctuations vary in like manner, being greatest in spring and least in winter, autumn coinciding very nearly with the mean for the year, and summer differing but little from spring. In the first named season the arc described is 8′.90, and in the second 3′.96.

From 1*h*. 45*m*. P. M., to about 7*h*. 05*m*. P. M., the movement is westerly, and the arc described 3′.96. Combining the observations of each season to ascertain the several periods of the latter, autumn coincides most closely with the mean of the year, and spring differs the most widely from it, the mean instant being retarded 5*m*. in the former, and anticipated 40*m*. in the latter season, whilst there are delays of 16*m*. and 18*m*. in the winter and summer respectively. The angular value of the westerly movement between these hours is much more uniform than the antecedent easterly oscillation, the largest arc described, 4′.54, being that of summer, and the smallest, 3′.61, that of winter. Autumn and spring are 3′.67 and 4′.04, respectively.

Between 7*h*. 5*m*. P. M. and about 6*h*. A. M., the north end of the magnet again moves to the eastward, the arc traversed being small; but as there were very few observations between midnight and 6 A. M., both the period and the arc must be regarded as only approximately known. Moreover, an examination of the record shows that the nights are uniformly more subject to abnormal oscillations than the days, and these frequently mask not only the instant of the lesser easterly departure from the mean magnetic meridian, but also the anterior hour of the lesser westerly deviation.

Finally, between 6*h*. A. M. and 9*h*. 0*m*., the bar has rapidly moved through an arc of 4′.20 to its extreme westerly plane. Of the several quarters the angular value of the oscillation in

autumn coincides most nearly with the mean for the year; in winter it does not amount to half so much, and differs most widely from the annual mean, whilst both summer and spring are in excess in the order in which they are named.

The following tables exhibit more in detail the facts thus announced:

TABLE I,

Showing the hours of the day in the several months and seasons at which the declination magnet attains its easterly and westerly elongations.

Months.	Maximum westerly.		Maximum easterly.		Second westerly.		Second easterly.	
	Monthly period.	Quarterly period.	Monthly period.	Quarterly period.	Monthly period.	Quarterly period.	Monthly period.	Quarterly period.
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	
December	A. M. 8 6		P. M. 2 26		P. M. 8 8		A. M. 6 13	
January	7 53	8 20	2 5	2 3	6 53	7 23		
February	9 00		1 38		7 8			
March	9 8		2 8		6 38			
April	9 21	9 28	1 35	1 40	7 38	7 10	5 38	
May	9 56		1 18		7 15		5 3	
June	10 13		1 17		6 13		5 13	
July	10 8	9 53	1 8	1 28	6 23	7 21	6 28	
August	9 18		1 58		9 28		6 3	
September	9 23		2 28		6 13		4 18	
October	8 13	8 17	1 00	1 47	6 10	6 25	5 23	
November	7 15		1 53		6 53			
Annual means	9 00		1 45		7 5			

TABLE II,

Showing the monthly and quarterly means of the arc described by the declination magnet, between its easterly and westerly elongations.

One scale division = 1′.00696.

Month.	Between 9h. A. M. and 1h. 45m. P. M.		Between 1h. 45m. P. M. and 7h. 5m. P. M.		Between 7h. 5m. P. M. and 6h. A. M.		Between 6h. A. M. and 9h. A. M.	
	Monthly means.	Quarterly means.	Monthly means.	Quarterly means.	Monthly means.	Quarterly means.	Monthly means.	Quarterly means.
	scale div.	*scale div.*	*scale div.*	*scale div.*	*scale div.*	*scale div.*	*scale div.*	*scale div.*
December	6.95		4.45		0.90		5.40	
January	9.85	6.10	4.30	4.50	*0.80	1.43	6.45	5.07
February	5.50		4.75		*2.60		3.35	
March	10.50		5.35		*0.50		5.65	
April	5.40	6.43	4.03	3.64	1.60	0.97	2.97	3.76
May	3.40		1.53		0.80		2.67	
June	3.73		2.60		1.13		2.27	
July	2.75	3.33	4.65	3.58	2.70	1.72	0.80	2.07
August	5.30		3.50		*1.33		3.13	
September	10.50		4.80		1.60		7.20	
October	10.15	8.82	5.80	4.00	0.90	0.83	5.55	5.75
November	5.80		1.60		*0.30		4.50	
Annual means	6.82		3.93		1.26		4.16	

* These results are inferred from the sum of the numbers in columns 4 and 8, less those of column 2.

HORIZONTAL FORCE.

THE UNIFILAR MAGNETOMETER.

DESCRIPTION OF THE INSTRUMENT.

The unifilar magnetometer consists of a 12-inch azimuth circle, divided on silver, and read by three verniers to 10″. It has a tangent screw and clamp. Above the circle a brass plate is centred which carries an oblong rectangular box of gun-metal with apertures at the extremities, fitted with plates of parallel glass. The box is surmounted by a glass suspension tube nine inches long, with a sliding suspension pin and torsion circle. Its sides are of wood, removable at pleasure. The torsion circle is divided to four degrees, and may be read by a vernier to one degree. A binding screw holds the sliding pin in place when at a proper elevation, and is prevented from turning within its socket by a projecting screw-head fitting into a groove cut its entire length. A fixed level is attached to the plate, and there are levelling screws beneath the circle.

There are four projecting arms to the plate. One pair sustains a reading telescope, with a divided ivory scale permanently placed in the vertical plane of its focus, and its counterpoise; and the second pair—at right angles to the former—support a gun-metal rod carefully divided into feet and decimals of a foot. The rod is about three and a half feet in length, and is held in place, edgewise beneath the box, by thrumb-screws that pass through the arms. A frame support for the deflecting magnet slides upon the rod and serves to determine its distance with accuracy.

The magnets are hollow cylinders, each resting in a stirrup fitted with a small mirror below its centre, for reflecting the divisions of the scale above the eye-end of the telescope. The suspension magnets are three inches, and the deflecting magnets are three inches and sixty-seven hundredths in length. Their stirrups and mirrors are removable, and the former are so constructed that they may be attached to the suspension fibre without torsion.

A brass cylinder of (nearly) the same dimensions and weight as the suspension magnet accompanies the instrument, to be used in determining the plane of detorsion; and it has a thermometer for registering temperature; a portable tripod stand; a small lamp for observations at night or in a dark room; a brass plummet; a reel of unspun silk; extra magnets of both dimensions; suspension tubes and adjusting tools.

THE VIBRATION APPARATUS.

The vibration apparatus consists of a rectangular mahogany box upon a table-top, which is centred on a board of equal dimensions. The table-top moves freely in azimuth, but the two may be firmly clamped together and the lower one made horizontal by its levelling screws. There are glazed apertures in the ends of the box, movable sides for ready manipulation of the magnet, and a glass tube for the suspending fibre screws into the top. The tube is furnished with a torsion circle cap and a sliding suspension pin, in all respects similar to that of the unifilar magnetometer.

During experiments of vibration the 3.67-inch magnet rests in a stirrup carrying a mirror, and its oscillations are noted by a telescope and scale, which is similarly adjusted and of like dimensions to those of the unifilar. The telescope is attached to an arm of the table-top, and is counterpoised by a movable weight, and its scale serves also to measure the arc of vibration.

The apparatus has a tripod stand, a plummet for levelling the table-top, a thermometer to be placed in the box with the magnet, annular weights of different diameters for determining the moment of inertia of the magnet and stirrup, a block to facilitate adjusting the weights upon the magnet, extra suspension tube, and all necessary adjusting tools, &c.

On unpacking the cases after their arrival from London, magnet V No. 4 was found greatly oxydized, and in consequence thereof the whole of the experiments were made with W No. 5 of 3.67 inches, and X No. 2 of 3 inches length.

Having no purposely-constructed magnetical observatory, an orchard just east of Santa Lucia, and near our residence, was selected as the most appropriate place for work, and until June 11, 1850, the observations were made under an arbor; after that date, beneath the shade of an olive tree 100 yards north of the arbor.

Unfortunately, at a very early period of the work, the thermometer used with the vibrating magnet was broken, and, as it was impossible to replace it in Chile, of necessity the temperature within the box is assumed to be the same as that of the external air.

FORMULAS OF REDUCTION AND CALCULATION OF THE CONSTANTS.

The absolute horizontal force of the earth's magnetism was determined by observation of the angular deflection of a suspended magnet, produced by the influence of a second magnet placed on a support at well-determined distances, in a line drawn from the centre of the first perpendicular to its direction, and by observing the time of vibration of the deflecting magnet. The first part of the process furnishes the *ratio* of the magnetic moment of the second magnet to the earth's horizontal magnetic force, the latter being to the former as 1 to the sine of the angle of deflection multiplied by half the cube of the distance employed; and the second, the *product* of the same two quantities, which is the quotient of a constant, we may call π^2 K, divided by the square of the time of vibration; π representing the ratio of the circumference of a circle to its diameter, and K the moment of inertia of the suspended magnet, with the stirrup in which it rests during vibration, the mirror, &c.

Continuing the notation of Colonel Sabine, R. A., in Appendix 1 to the "*Manual of Scientific Enquiry*," and Captain C. S. B. Riddell, R. A., in the "*Magnetical Instructions for the use of Portable Instruments*," both published by authority of the Lords Commissioners of the Admiralty, let

m = the magnetic moment of the deflecting bar.
X = the earth's horizontal force.
r = the distance between the centres of the magnets.
u = the angle of deflection.
T = the time of vibration.
P = a coefficient depending upon the distribution of the free magnetism of the deflecting and suspended magnets.

Then
$$\frac{m}{X} = \frac{\frac{1}{2} r^3 \sin u}{1 + \frac{P}{r^2}} \text{ and } m\,X = \frac{\pi^2 K}{T^2}$$

P being a constant coefficient, is determined experimentally from observations at several distances calculated by the formula—

$$P = - \frac{r^2 r_i^5 \sin u' - r_i^2 r^5 \sin u}{r_i^5 \sin u' - r^5 \sin u}$$

The mean of all the values determined in this way was P = — 0.00243, which has been employed throughout the reductions.

The values of m X and $\frac{m}{X}$ being known, if m X = A and $\frac{m}{X}$ = B,

$$m = \sqrt{A\,B}$$

$$X = \sqrt{\frac{A}{B}}$$

To determine the value of K, the magnet, stirrup, &c., is vibrated a second time, with the addition of a metal ring, whose internal and external diameters and weight are correctly known. Denoting the two radii (in decimals of a foot) by r and $r_{,}$, and the weight (in troy grains) by W, the moment of inertia of the ring K′ is—

$$K' = \tfrac{1}{2}\,(r^2 + r_{,}^2)\,W;$$

then if T represent the time of vibration of the magnet without the ring, and T′ the time of vibration with the addition of the ring, the moment of inertia of the magnet and stirrup in the vibrations without the ring is expressed by the formula—

$$K = K'\left(\frac{T^2}{T'^2 - T^2}\right)$$

It is necessary to correct the value of T for the force of torsion of the suspension thread, the rate of the chronometer used in the observations, the arc of vibration, and for the changes in the dimensions or form of the suspended mass produced by changes of temperature. The rate of the chronometer denoted by x $\left\{\begin{matrix}+\text{ when gaining}\\-\text{ when losing}\end{matrix}\right\}$ is supposed to be known; the semi-arcs of the vibration at commencement and end of the series in parts of radius d and d' are noted from the scale, and the ratio of the torsion force of the suspension fibre to the earth's directive force is obtained by turning the torsion circle through two or more large angles, and noting the corresponding differences of scale reading. If the coefficient of the torsion force = H, the earth's directive force = F, the mean of the angles = w, and that of the differences of scale reading reduced to angular value = u, then

$$\frac{H}{F} = \frac{u}{w - u}$$

The correction for the arc of vibration is found by the formula $\frac{a\,a'}{16} = a^2\,d\,d' \times 0.000072722^2$, in which a denotes the angular value of a scale division, d and d' the semi-arcs of vibration in scale divisions, and the last correction, viz: for change in the dimensions of the suspended bar, consists in multiplying the value of K by the quantity

$$1 + 2\,e\,(t' - t),$$

t' denoting the actual temperature of the magnet, t the temperature corresponding to the time of the original observations, and e the coefficient of the dilatation of steel for 1 degree Fahrenheit. The numerical value of e is 0.000068.

In out-door observations, as ours always were, the temperature is rarely the same at the vibration and deflection experiments. During the former, the magnet is enclosed in a nearly air-tight box of wood, within which the temperature is quite steady, and at those of deflection the same bar is exposed to the fluctuations of every passing current as well as to horary changes. As the magnetic moment of the deflector varies with every rise or fall of the thermometer, if the temperature at the time of the experiments of vibration differs from that during the experiments of deflection, a correction is necessary on this account. The mode in which the temperature coefficient, represented by q, was determined, will be detailed farther on; the value for each

degree Fahrenheit was found to be $q = 0.000393762$. Representing the two temperatures by t and t_o, and the *observed* time of a single vibration by T_o, the corrections applicable to T may be combined in the formula—

$$T^2 = \left\{ T_o \left(1 - \frac{x}{86400}\right) \cdot \left(1 - \frac{a\,a'}{16}\right) \right\}^2 \cdot \left(1 + \frac{H}{F}\right) \cdot \left(1 - (t - t_o)\, q\right)$$

Dr. Lamont has pointed out a further very small negative correction necessary in obtaining m X, due to the change in the value of m, produced by the earth's inducing action on the deflecting magnet in its two positions. In one case the magnet is perpendicular to the magnetic meridian, or very nearly so, when the magnetic moment is that proper to the bar itself; and in the other, it coincides with that meridian, and its moment is augmented by the inducing action of the earth. The determination of this coefficient requires the use of a bifilar magnetometer; and as there was no such instrument at command, the correction has necessarily been omitted in the calculation of our observations.

MODE OF OBSERVING, AND EXPLANATION OF THE OBSERVATIONS.

Observations commence with experiments of vibration. The days selected were the 1st, 11th, and *term-day* of each month. When either of the days first named fell on Sunday, observations were made on the following day.

The vibration box being placed on the stand about 11 A. M. of the assigned day, its telescope and counterpoise were properly placed, the instrument was levelled and the torsion of the suspending fibre were partially corrected at the same operation, by means of the brass plummet. When the latter had come to rest, the 3.67-inch magnet and its mirror was suspended; then elevated by the sliding pin until the divisions of the scale were reflected into the telescope, and the table-top was turned in azimuth until the vibrations were equal on each side of the scale zero. When the latter were reduced to about 1° on each side of zero, the extreme scale divisions and temperature of the magnet were recorded, and observations immediately commenced of the times of vibration across the central wire of the telescope. The times of the first and each fourth subsequent vibration to the twenty-fourth were first noted; then every sixtieth to the three-hundredth, and afterwards each fourth again until three hundred and twenty-four vibrations had been numbered. This completed, the extreme coinciding reflected scale divisions and temperature were again noted; and finally, when the magnet had become still, the ratio of the torsion to the earth's directive force was ascertained.

But whilst awaiting opportunity for the last experiment, the unifilar magnetometer was set up, the gun-metal rod secured in its place, the instrument carefully levelled, and the detorsion bar suspended. When the plane of detorsion coincided (approximately) with the magnetic meridian, the 3-inch magnet was suspended, and after the latter became still the circle was clamped and the tangent screw turned until the image of the scale zero, seen in the mirror, coincided with the vertical wire of the telescope. The readings of the verniers in (this) magnetic meridian were noted, the sliding frame adjusted at the distance of one foot to the west of the suspended magnet, and the 3.67-inch deflector put in place, with its north pole to the east. The telescope was then turned until the oscillations of the suspended magnet on either side of the scale zero were equal; and when they had ceased, the temperature was noted and the verniers again read. The north pole of the deflecting magnet was next turned to the west, the circle moved to coincidence, and its verniers and the temperature were recorded as before. Then the deflector was adjusted at the distance of 1.3 foot; and when the angles of deflection in both positions of its north pole had been read, it was shifted to the east arm of the graduated bar, and similar experiments were made, but in reversed order of the distances.

At the termination of the preceding, a second series of vibration experiments completes the data required for a single determination. The routine of observation will appear more clearly in the following transcripts from the note-books.

WASHINGTON, MAY 20, 1854.

The radius of the vibration apparatus and unifilar magnetomer, including two-thirds the thickness of the plate-glass mirrors, was found to be 1.414 foot, the divisions measuring—

	Foot.		Foot.
From 100 to 300 . . .	0.166 . . .	Value of 1 div. =	0.00083
200 to 300 . . .	0.083 . . .	do.	0.00083
300 to 400 . . .	0.083 . . .	do.	0.00083
300 to 500 . . .	0.166 . . .	do.	0.00083

Resulting arc value of 1 division, 1′.00896.

Experiments were next made for the moment of inertia of the deflecting magnet. The base of the vibration apparatus (in the office) being levelled carefully by means of the plummet, it was suffered to stand until the latter ceased rotating, when magnet No. 5 W was suspended and raised to proper height for vision of the ivory scale reflected into the telescope. The table-top was then turned in azimuth until the vibrations of the magnet were equal on each side of the central scale division, and was clamped in that position. When the magnet had come to rest, the torsion circle was turned alternately through 90° in each direction, and the corresponding scale readings noted as in the subjoined table.

Observations for the value of $\frac{H}{F}$ *without weights.*

Torsion circle.		Scale.	
Readings.	Differences.	Readings.	Differences.
°	°	*div.*	
90 E.	180	272.5	21.5
90 W.		294.0	
90 E.	180	300 0	23.0
90 W.		323.0	
90 E.	180	301.0	21.9
90 W.		322.9	
90 E.	180	274.0	22.0
90 W.		296.0	
90 E.	180	270.0	25.0
90 W.		295.0	
90 E.	180	302.0	20.0
90 W.		322.0	
90 E.	180	270.0	24.5
90 W.		294.5	
90 E.	180	302.0	20.2
90 W.		322.2	
Sums	1440		177.1 °
Means	$w = 180° = 10800'$		$u = 22.137 \times 1'.00896 = 22'.335$

$$\text{And } \frac{H}{F} = \frac{u}{w-u} = \frac{22'.335}{10800' - 22'.335} = .002054.$$

Careful measurement of weight No. 14 showed its diameters to be $r = 3.60$ *in.*, $r' = 3.03$ *in.*, and weight $W = 1100$ troy grains. Facilitated by a disc of wood, having a groove in which

the magnet with its stirrup may lie, it was then nicely balanced on the deflecting bar, and the following experiments for the value of $\frac{H}{F}$, and times of vibration of the mass, were noted:

Observations for the value of $\frac{H}{F}$ *with weight.*

Torsion circle.		Scale.	
Readings.	Differences.	Readings.	Differences.
°	°	div.	
90 E.	180	267.0	43.0
90 W.		310.0	
90 E.	180	267.0	42.8
90 W.		309.8	
90 E.	180	267.2	42.4
90 W.		309.6	
90 E.	180	266.6	42.6
90 W.		309.2	
Sums	720		170.8
Means	$w = 180° = 10800'$		$u = 42.7 \times 1'.00896 = 43'.0826$

Substituting numerical values—

$$\frac{H}{F} = \frac{43'.0826}{10800' - 43'.0826} = .004005.$$

Experiments of vibration without weight.

FIRST SERIES.					SECOND SERIES.				
Obs'd times.	Difference.	No. of vibrations.	Time of one vibration.	Semi-arc vibration.	Obs'd time.	Difference.	No. of vibrations.	Time of one vibration.	Semi-arc vibration.
h. m. s.	s.		s.		h. m. s.	s.		s.	
3 18 50 1				$d = 45.0$	5 12 33.2				$d = 66.5$
59.6	9 5	2	4.750		42.8	9.6	2	4.800	
19 9.4	9.8	2	4.900		52.3	9.5	2	4.750	
19.0	9.6	2	4.800		13 2.0	9.7	2	4.850	
28.5	9.5	2	4.750		11.5	9.5	2	4.750	
38.2	9.7	2	4.850		21.2	9.7	2	4.850	
19 47.8	9.6	2	4.800		30.7	9.5	2	4.750	
21 14.5	86.7	18	4.817		59.7	29.0	6	4.833	
23 39.0	144.5	30	4.817		14 47.8	48.1	10	4.810	
26 3.5	144.5	30	4.817		15 36.0	48.2	10	4.820	
28 27.9	144.4	30	4.813		16 24.0	48.0	10	4.800	
30 52 3	144.4	30	4.813		17 12.3	48.3	10	4.830	
31 1.9	9.6	2	4.800		18 0.4	48.1	10	4.810	
11.5	9.6	2	4.800		48.5	48.1	10	4.810	
21.1	9.6	2	4.800		19 36.6	48.1	10	4.810	
30.6	9.5	2	4.750		20 24.7	48.1	10	4.810	
40.4	9.8	2	4.900		34.3	9.6	2	4.800	
50.0	9.6	2	4.800		43.9	9.6	2	4.800	
59.5	9.5	2	4.750		53.5	9.6	2	4.800	
3 32 9.1	9.6	2	4 800	$d' = 24.5$	5 21 3.3	9.8	2	4.900	$d' = 46.0$
Sums . . .	799.0	166			Sums . . .	510.1	106		
Means	$T_0 =$	4.81325			Means	$T_0 =$	4.81296		

Chronometer, ARNOLD & DENT, No. 1253, slow of mean Greenwich time 13*m*. 50*s*.57, and losing daily 0*s*.61. During the first series of vibrations the temperature of the magnet was 76°, and during the last 77°.

Experiments of vibration with weight.

Obs'd times.	Difference.	No. of vibrations.	Time of one vibration.	Temperature magnet	Semi-arc vibration.
h. m. s.	s.		s.	°	
3 54 14.0				76.5	*d* 116.0
42.4	28.4	2	14.200		
55 11.0	28.6	2	.300		
39.5	28.5	2	.250		
56 8.0	28.5	2	.250		
36.5	28.5	2	.250		
57 5.1	28.6	2	.300		
58 59.3	114.2	8	.275		
4 1 22.0	142.7	10	.270		
3 44.7	142.7	10	.270		
6 7.5	142.8	10	.280		
8 30.2	142.7	10	.270		
11 21.5	171.3	12	.275		
13 15.5	114.0	8	.250		
15 38.3	142.8	10	.280		
18 1.0	142.7	10	.270		
29.5	28.5	2	.250		
58.0	28.5	2	.250		
19 26.6	28.6	2	.300		
55.0	28.4	2	.200		
20 23.7	28.7	2	.350		
4 20 52.3	28.6	2	14.300	76.5	*d'* 85.5
Sums . . .	1598.3	112			
Means . .		T' =	14.270536		

Calculation of the value $1-\frac{x}{86400}$; $x=-0s.61$.

86400*s*.	log	4.9365137
−0*s*.61	log	9.7853298
	.0000071 =	4.8488161

Calculation of the values $\frac{a\,a'}{16}$

Without weights.

$a=1'.00896$; $d=41.0$; $d'=24.5$

a^2 log	0.0077480
d log	1.6127840
d' log	1.3891660
.000072722 ^{2} log	1.7233316
.0000054	= 4.7330296
$1-\frac{x}{86400}$ log	1.0000070
$\frac{a\,a'}{16}$	= 1.0000016

With weights.

$a=1'.00896$; $d=116.0$; $d'=85.5$

a^2 log	0.0077480
d log	2.0644580
d' log	1.9319661
.000072722 ^{2}	1.7233316
.00005339	= 5.7275037
$1-\frac{x}{86400}$	1.00000706
$\frac{a\,a'}{16}$	= 9.99905367

Calculation of the values of T *and* T′.

$T_o = 4^s.81325$; $\frac{H}{F} = .002054$		$T'_o = 14^s.270536$; $\frac{H}{F} = .004005$	
log. T_o = ...	0.6824385	log. T'_o	1.1525187
$1 - \frac{x}{86400} - \frac{aa'}{16}$	0.0000007	$1 - \frac{x}{86400} - \frac{aa'}{16}$	9.9999799
	0.6824392		1.1543762
$T_o^2 + 1 - \frac{x}{86400} - \frac{aa'}{16}$ =	1.3648784	$T'^2_o + 1 - \frac{x}{86400} - \frac{aa'}{16}$ . .	2.3087424
$1 + \frac{H}{F}$ . . log	0.0008704	$1 + \frac{H}{F}$ log	0.0017359
$T^2 = 23^s.21383$ =	1.3657488	$T'^2 = 204^s.39878$	2.3104783

Calculation of the value of K.

$r = 0.3000$ feet; $r' = 0.2525$ feet; W = 1100 troy grains.

log ½ r	9.1760913	. . . log² . . .	8.3521826 = 0.022500
log ½ r'	9.1012314	. . . log² . . .	8.2024628 = 0.015939
			8.5847721 = ½ $r^2 + r'^2$ = 0.038439
log ½	9.6989700		
log W	3 0413927		
K′ =	1.3251348		

$T'^2 = 204.39878$		K′ log	1.3251348
$T^2 = 23.21383$		T^2 log	1.3657486
$T'^2 - T^2 = 181.18495$		ar. co. log	7.7418717
		K = 2.7086638 =	0.4327551

The value of K, obtained from a mean of several partial results, and used throughout the computations, is K = 2.66092.

OBSERVATIONS TO DETERMINE THE TEMPERATURE CORRECTION.

For these experiments two magnetometers are required: one for observing the total angle of deflection and variations in its amount produced by changes of temperature; the other for observing the changes of declination occurring during the same intervals. The two instruments should be observed simultaneously, and, if possible, observations should also be made with a bifilar magnetometer at the same time. We had no bifilar magnetometer.

May 14, 1854. In the east hall of the Smithsonian Institution, beneath a floor thirty feet distant, supported on iron beams placed nearly north and south. At a like distance from the spot chosen for experiments, but on the floor of the same room used, there were a few iron gas-pipes.

The unifilar being set up and carefully adjusted, a copper box, eight inches long by five inches in breadth and depth, was so placed to the east of it that the centre of the deflecting magnet, when on the supports within the box, would occupy a point in the same horizontal plane one foot and three-tenths from the suspended magnet. When the latter had come to

rest, the tangent screw to the circle was turned until the image of the central division of the scale (300.0) was covered by the telescope wire. The verniers were then read and magnet No. 2× 3.67 inches was placed on the supports within the box. Turning the instrument through an angle precisely equal to the deflection produced, the circle verniers were again read, at which instant the scale of the vibration apparatus, set up within thirty feet to determine changes of declination, denoted 296.0.

CIRCLE READINGS.

Before temperature experiments.		*After temperature experiments.*	
Magnet away.	Magnet in place.	Magnet away.	Magnet in place.
° ′ ″	° ′ ″	° ′ ″	° ′ ″
245 29 10	229 38 10	245 30 50	239 42 40
30 00	39 00	31 30	43 10
27 20	36 20	28 50	40 20

After the first readings of the circle, a thermometer was placed in the box with its bulb near the magnet, and the box carefully filled with warm water. When it was thought that the box, water, and magnet, were of the same temperature, five simultaneous readings of the thermometer, the unifilar, and the declinometer scales, were made at equal intervals of time. The hot water was next drawn off with a syphon and ice-water substituted, whose temperature and influence on the deflector were noted in the same manner. A repetition of both hot and cold water trials followed, with the results shown in the subjoined table. Pounded ice was used in reducing the temperature of the cold water. At the last reading with the (deflector) "magnet in place," the magnet and interior of the box were both still wet.

Experiments for temperature coefficient of magnet No. 2× 3.67 inches.

Time.	Temperature.			Unifilar.			Declinometer.		
	Thermometer.	Means.	Difference.	Scale.	Means.	Difference.	Scale.	Means.	Difference.
h. m.	°	°	°	div.	div.	div.	div.	div.	div.
12 22	116.8			310.0			295.80		
24	116.2			309 7			295.80		
26	115.7	115.80		309.6	309.52		295.80	295.83	
28	115.5			309.3			295.85		
30	114.8			309.0			295.90		
			75.44			6.88			+0.18
12 55	39.9			302.7			296.00		
57	40.0			302.6			295.95		
59	40.4	40.36		302.6	302.64		296.00	296.01	
13 1	40.7			302.6			296.00		
3	40.8			302.7			296.10		
			56.32			5.96			+0.24
13 22	98.0			308.7			296.10		
24	97.4			308.6			296.00		
26	96.5	96.68		308.6	308.60		296.00	296.07	
28	96.0			308.6			296.10		
30	95.5			308.5			296.15		
			54.42			4.72			+0.52
13 44	42.5			303.8			296.30		
46	42.2			303.9			296.30		
48	42.2	42.26		303.9	303.88		296.40	296.35	
50	42.2			303.9			296.40		
52	42.2			303.9			296.35		
Means . .			62.06			5.853			+0.313

The change of magnetic moment for one degree of temperature, or the value to be employed as a constant coefficient, is calculated by Captain Riddell, according to the formula—

$$q = \frac{1}{t - t_0} \times a\, n \cot u.$$

u representing the angle of deflection at lowest mean temperature.
a the arc value of one scale division in terms of radius.
n the difference of scale readings corrected for change of declination.
$t - t_0$ the change in the temperature of the deflecting magnet.

Substituting the numerical values found by the preceding experiments, and adopting as the total angle of deflection the differences of circle reading after the temperature observations, because most coincident in time, we have—

$u = 5° 48' 20''$	cot	0.992789
$a = .000415$	log	6.618048
$n = 5'.987$	log	0.777209
$t - t_0 = 62°.06$ log 1.792812	ar. co	8.207188
1	log	0.000000
$q = 0.00039376$		6.595234

A portion of the earlier observations, which follow, were made by myself, as well as those at Valparaiso, Herradura, Caldera, Copiapó, and La Candelaria mine; all of the others by Lieut. MacRae.

At Valparaiso the observatory grounds of Mr. Mowatt, on the hill, above the custom-house, were selected for the station; at Herradura the grounds of the English Copper Smelting Company, near Captain Fitzroy's old site; at Caldera the terrace in front of the custom-house; at Copiapó the patio to the house of Don Diego Carvallo, half a square S.W. of the plaza; and at La Candelaria, near the mouth of the mine. This mine is on the summit of a hill called El Bolaco, 3,698 feet above the level of the ocean, in latitude 27° 47′ 51″ S.; longitude 4*h*. 41*m*. 57*s*. W.

Occasionally, on the first day of the month, the unifilar magnetometer was set up, and the deflector bar being placed perpendicular to and within a short distance of the suspended magnet, changes of the latter were observed during an hour at intervals of 10*s*. These observations will be found on pages 27—31. As the two magnets were accurately in the same horizontal plane, and the unifilar was turned in the opposite direction through an angle precisely equal to the deflection caused by the stationary magnet, this angle and the time of vibration of the latter being known, fluctuations of the horizontal force may be calculated. The requisite data will be found on pages 32—117.

All the calculations on pages 120—123 were made by Lieutenant Archibald MacRae, principal assistant.

THE INCLINOMETER.

DESCRIPTION OF THE INSTRUMENT.

The instrument used in determining the dip was made by Messrs. Henry Barrow & Co., Oxendon street, London. It is a modification by Professor Kreil and Dr. Lloyd, of the circle devised by Gauss. It consists of a four-inch horizontal circle divided to half degrees, read by means of a vernier to minutes, and which rests on a centre-piece with three levelling screws. An oblong brass plate revolving above the circle carries four upright columns, one pair of which, three and a half inches high, are within a flat mahogany box, six and three-quarter inches high

and long, with front and back of parallel glass. The box is fastened to the oblong plate by keys and pins which pass through it, and is removable at pleasure. The columns within the box sustain two horizotal bars 0.6 inch apart, fitted with agate planes. Between them there is a loose frame, with a pair of Y's in the middle, a hinge at one end and projecting pin at the other, operated by a milled head outside of the box, and for more convenient manipulation of the needle the front of the box is hinged. There is a spirit-level on the plate between the columns, and a clamp-screw, by which it may be secured to the horizontal circle.

The other pair of columns mentioned—four inches high and five and a half inches apart—sustain a vertical circle of six inches diameter. This is divided upwards and downwards, from 0° to 180°, on a band of silver, to half degrees, which are subdivisible to single minutes of arc by two diametrically opposite verniers. These verniers are at the extremities of movable radius bars, carrying reading microscopes three and a half inches apart, each microscope having three parallel lines engraved across a disc of thin glass in the common focus of their object and eye lenses. A third radius bar at right-angles to the others is furnished with a clamp and tangent screw. When the verniers read 0° the central lines of the microscopes are in a horizontal plane above the surfaces of the agates equal to half the diameter of the axles of the needles, and equi-distant from the Y's, to effect which adjustment both the microscopes and agate planes are furnished with suitable capstan-head screws.

The instrument has two needles, marked A 1 and A 2, respectively. Each is 3.5 inches in length, 0.17 of an inch broad in the centre, 0.033 of an inch thick. Their axles are 0.88 of an inch long, the extremities that rest on the planes being 0.025 of an inch in diameter. When in place, the ends of the needle are at distinct vision of the microscopes.

An extra bar accompanies the inclinometer, to be used, in accordanee with a suggestion of Dr. Lloyd, for measuring the absolute total force in localities where the inclination approaches 90°, and where the usual method of ascertaining this element from its horizontal component ceases to be satisfactory. The extra bar is to be attached to a prolongation of the radius bar which is fitted with clamp and tangent screws, and is so constructed that the graduated tube in which it terminates shall be in the same vertical plane as the inclination needle when in place. A counterpoise, to be attached above the clamp and tangent screw, in this use of the instrument, preserves it in equilibrium. These portions of the inclinometer were never used by us.

A pair of nine-inch bar magnets and a portable stand also came with it. The former commenced to lose their magnetism immediately; and as there was no facility for properly re-magnetising them in Chile, a new pair was ordered from Mr. Thomas Jones, Charing-Cross, London. A similar difficulty having been experienced on more than one previous occasion, instructions were sent to insure, if possible, bars that would retain their strength. But the second pair proved no better than the first; and, though every care of them was taken, within less than three months neither single magnet would lift one of the needles. This made the observations both tedious and unsatisfactory, because, whilst the needles oscillated longer for want of saturation, the individual readings were invariably more discordant. Another source of annoyance was the want of a tangent screw to the horizontal circle.

MODE OF OBSERVATION.

Observations of the inclination were made as follows: After the instrument had been levelled on its tripod-stand, the needle designed for experiment was placed on the agate supports, with its marked side next to the microscopes, and the vertical radius bar was turned until the upper microscope read 90°. The vertical circle was then turned in azimuth, with the microscopes to the south, until the upper end of the needle was bisected by the middle line of the corresponding microscope. If it continued to be so bisected after raising the Y's, and lowering the needle again, the reading of the horizontal circle was noted. The vernier of the lower microscope was next set at 90°, and the reading of the horizontal circle recorded when the south pole had been

brought to bisection in a similar manner. Two other readings of the azimuth circle were made with the microscopes to the north; and the mean of the four readings showed the division to which the vernier of that circle should be set, in order that the plane of the vertical circle should be at right-angles to the magnetic meridian.

Moving the vertical circle 90° in azimuth, it coincided with the plane of the magnetic meridian, and the needle directed itself approximately to the inclination. Let us suppose the needle at rest, with its marked side next the microscopes, and to the east. By means of the tangent screw, the central lines of the microscopes were then alternately brought to bisect its ends, and three readings of the vertical circle were noted for each pole, the needle being raised and gently lowered to the agates between the pairs of readings. Then turning the microscopes 180°, so that the upper became the lower one, three similar pairs of readings were obtained; and the vertical circle being moved 180° in azimuth, like numbers of readings were made with the same formality.

Next, the axle of the needle was inverted on its supports, so that the marked face was away from the microscopes. Six other readings being made, the face of the instrument was again turned to the east, and the first series closed by an equal number of readings in reversed positions of the microscopes.

By means of the bar-magnets the poles of the needle were now reversed. One of the former was held in each hand in a nearly vertical position, and drawn from the axle to the extremities of the needle, usually about ten times, when the latter was turned over in the wooden frame holding it, so that the other flat side became uppermost; and in this position the bar-magnets were drawn over it a like number of times. Care was taken to draw the north pole of the bar-magnet from the axle to the extremity of the north pole of the needle, and the south pole of the other bar-magnet in the opposite direction from the axle.

Twenty-four readings, made, as were those of the first series, in inverted positions of the microscopes and needle on the agates and reversed face of the vertical circle, completed the experiments. By readings under so many changes we eliminate, errors which might arise from deviation of the line joining the zero points of the circle from the horizontal and excentricity of the microscopes, inclination of the magnetic axis to the axis of form, and non-coincidence of the centre of gravity with the centre of motion.

Very shortly after commencing the experiments, it became evident that the axle of one of the magnets had been injured. There was not leisure at the time to investigate with the requisite care which was the defective one; but the observations were continued throughout with both magnets, and all are inserted, however discordant. On returning home, it was found that the axle of magnet A 1 was bent; and from a mean of several experiments, the observed was ascertained to be 23′.1 less than the true inclination. This was determined by observing the inclination in several known magnetic azimuths with both magnets, and computing the true inclination from the formula—

$$\tan \theta = \tan \eta \operatorname{cosec} \alpha,$$

in which θ = the true inclination,
η = the inclination observed,
α = the azimuth of the vertical circle.

If the inclination thus inferred is the same as the inclination given by the magnet when in the magnetic meridian, there is neither defect in the axle nor polarity in the other portions of the instrument.

Another mode of ascertaining the same defects is from observations of the inclination in any two vertical planes perpendicular to each other. Then, if the inclinations in these two planes be represented by η and η',

$$\operatorname{Cot}^2 \theta = \cot^2 \eta + \cot^2 \eta'.$$

The observations (printed on pages 127, 129) require no explanation. They were made a few yards south of the unifilar observations, and on the same spot as those for absolute declination. Prior to October, 1850, and at the six stations specified in the separate table of page 129, they were made by myself; the others by Mr. Phelps. No correction has been applied for defective axle to magnet A 1.

It was supposed that this structure of the instrument might permit small changes of the inclination to be observed with considerable accuracy, and hourly or semi-hourly readings were made on certain of the *term-days* for the purpose of testing the question. The records then made and given on page 130 indicate that our inclinometer was not a reliable instrument for such a purpose. It is proper to mention, however, that the bar-magnets were so weak, the needles could not be charged satisfactorily; and as the latter were lifted just prior to each observation, it is quite possible that their directive force was not wholly sufficient to overcome even the slight friction of the axles on the agate planes. Saturated needles might have given much more accordant results.

METEOROLOGICAL OBSERVATIONS.

TOPOGRAPHY OF THE SANTIAGO BASIN.

The city of Santiago, in latitude 33° 26′ 26″ south, west longitude 70° 38′ 27″, is near the northern focus of an elliptic plain or basin, whose longer axis is in a N.N.W. and S.S.E. direction, and at an elevation of 1,790 feet above the Pacific ocean. The general superficial stratum of the basin consists of sand mixed with rolled pebbles, and fragments of stone disposed in longitudinal layers, through which many hills, principally of porphyry, rise to heights varying from 200 to 1,300 feet. It has inclination in two directions: one from north to south; the other from east to west; but, as the latter is the more precipitous, their resultant is from E.N.E. to W.S.W., or perpendicular to the longer axis. One of the eminences that attains a height of 200 feet, and is about 450 yards long, (Santa Lucia,) is within the city proper; a second, of double these dimensions, is just inside the northern boundary; and a third, distant five or six miles in a northwest direction, has a height of 1,100 feet.

The base of the nearest Andean range lies nine miles to the east. This, reaching a mean elevation of 10,500 feet, with knolls that run up to 13,000, sweeps off in a general line N.E., leaving a narrow and abruptly inclined valley between it and a lower spur whose origin is a little further to the northward. Eastward of the near range there are three or four others, with intervening valleys and basins, that lie nearly parallel with a meridian of longitude, and whose bases are spread over about 120 miles. The southwestern point of the spur named is more than 700 feet high, and is separated from the city by the Mapocho, an impetuous rivulet, whose snow-waters descend through the valley just mentioned. In its direction the view is cut off by gigantic cordilleras, perhaps scarcely forty miles away, and not less than 8,000 feet of which, from the summit downwards, is forever buried beneath snow. Though hidden by the nearer chain, Tupungato and Aconcagua, each exceeding 22,000 feet in height, both belong to that group. On the more elevated and shaded portions of the near range, also, snow is visible in patches through the heats of summer.

North of the city the resultant direction of the nearer chain and its several spurs is N.N.W. as far as latitude 33° south, where it makes a bold sweep, first in a westerly, then in a south-westerly, and, finally, in a south by west line, leaving the head of the basin some fifteen miles across, and with a northerly bounding wall more than 3,000 feet high. The last specified line is followed by the chain to latitude 33° 40′, when it bends gradually to the eastward, and, in latitude 34°, approaches to the meridian of Santiago. Irregular and broken in its outline, this western rim of the basin has several eminences exceeding 7,000 feet in height, is washed along its northern half by the Colina, a tributary of the Mapocho, into which it empties twelve miles west of Santiago, and is broken through by the Maypu, a bold mountain stream that crosses it eighteen miles south of the city. From the issue of the Maypu on the basin to its penetration of the western rim, is probably forty miles. Between that rim and the ocean—another forty miles in an air-line—there is a less lofty range midway, and a country so broken that there is but a small portion capable of cultivation under artificial irrigation. The southern glens and higher slopes are partially covered with evergreen trees of small growth and shrubbery; but vegetation on most of those having northern aspects, and all level ground, is destroyed by heat and want of moisture within two months after cessation of the showers in September.

South of the city the culminating points of the nearer chain lie in a north and south line as far as the river Maypu, from whence their general direction is inclined to the west until, in latitude 33° 50′, the ridge curves quickly to the westward, and in 34° a prominent spur approaches to within sixty yards of the western range. These opposite eminences rise rapidly from the plain to heights exceeding 1,000 feet above it, and the sides of the intervening gorge continue parallel, though winding, through two or three hundred yards. Then, the mountain slopes bend away again to the east and west, respectively, until the basin to the southward is quite thirty miles broad, when their general southerly directions are resumed. This second basin is somewhat similarly closed fifty miles S.W. of the Angostura de Payne, as the gorge is called.

A small stream of limpid water flows in a north-northwesterly course around the southern base of the eastern spur, to a junction with a similar rivulet that descends from lower ranges of the Andes along its northern declivity. The direction of the united streams from their confluence is N.W. until their waters fall into the Maypu at the base of the western cordilleras. Thus, the whole northwest, west, and southwest sides of the basin are bounded by water-courses; the Colina creek crosses it in latitude 33° 15′, and Payne creek (just referred to) in 33° 50′, at the base of the southern Andean bounding spur.

Except in the glens between the spurs from both the eastern and western cordilleras, there are few indigenous trees on the basin. Disintegration of the granite largely entering into the formation of the latter chain, has formed a soil upon its slopes on which scanty vegetation perpetually thrives at a moderate elevation, whilst the Andean group, composed extensively of stratified and columnar porphyries, offers to the sight long lines of blackened hills and crags as denuded of herbage as at the hour when internal heat thrust them above the surrounding level. Thirty years ago even the surface of the plain was cultivated only in the vicinity of the several transverse streams, and there were neither fruit-bearing nor shade-trees, except in narrow belts where supplies of water were accessible along their banks. Then, rains very rarely occurred between the months of September and May; and, under the joint powers of heat and radiation to a constantly cloudless sky, all the remaining portions were rapidly stripped of the verdure that had thriven vigorously under the influence of winter showers. At that time, and almost simultaneously, canals were cut along the base of the nearer range to convey portions of the waters of the Maypu and Mapocho in a northerly direction, and slips of the *Populus dilatata* were brought from Mendoza, a city on the eastern side of the Andes. A large volume of the water taken from the former was emptied into the latter stream, and the whole supply extracted from the latter was employed for irrigating fields north of Santiago. As both canals are above the gene-

ral level of the belts of the basin they bound, they afford a supply to multitudes of channels filled with the life-current; and now, from the Angostura de Payne at the south, to Colina creek at the north, almost every foot of the ground is rendered useful to man, and millions of poplars in stately rows have been propagated from the still existing original branch.

CHANGE OF CLIMATE.

Had meteorological registers been regularly kept during the intervening period, we should be able to verify whether the progress of cultivation has sensibly modified the climate, as all believe, and as is asserted by many of the older and more intelligent residents. They say that rain, except in the last of the autumn and all three of the winter months, (of the southern hemisphere,) was an extraordinary phenomenon at Santiago; that thunder-storms *over the plain* were never known; and that cloudy weather in summer was a departure from the normal condition of the sky, causing noted comment. One of them, more observant than the rest, preserved a record of the days and number of hours during which rain fell in every month from 1824 to 1850, inclusive, publishing the results in the "*Anales de la Universidad*" for 1851. During those twenty-seven years there were nine days on which some rain fell in December, two of them being in 1850; twelve days when it fell in November, four of them in 1850; fifty days when there were showers in October, two of which were in 1850; and sixty days when there were rains in September, five of which were in 1850. Or, of the one hundred and thirty-one departures from a normal atmospheric state, one-tenth of the number were during the last year of his experience, and the first of ours. Our journal shows some rain in almost every month from November, 1849, to September, 1852, the exceptions being January, 1851, and February and March of 1852; four violent thunder-storms brought their testimony in favor of the supposed changing climate, and the frequency of clouds during the second summer of our stay was strangely at variance with the reputed atmosphere of the capital. The following table, compiled from the paper in the "*Anales*," will show the distribution of rains through the year more satisfactorily as to time, but affords no indications of the amount of the aqueous deposite.

TABLE III.

Hours of rain at Santiago de Chile.

Months.	1824.	1825.	1826.	1827.	1828.	1829.	1830.	1831.	1832.	1833.	1834.	1835.	1836.	1837.
	Hours.	*Hours.*	*Hours.*	*Hours.*	*Hours.*	*Hours.*	*Hours.*	*Hours.*	*Hours.*	*Hours.*	*Hours.*	*Hours.*	*Hours.*	*Hours.*
January							10							40
February												4		
March							13					9		
April	52			23	64		7	4	2	11		8		3
May	57	13	24½	77	28	19	20			58	39	23	14	70
June	12	25	5½	83	74	71½	11	29	3	71	30	32	42	36
July	51½	21	30	79	77	110	22	41	6	42	48	25	107	107
August	24	37	71	12	17	95	25	13½	24	117	15	17		
September	24	34	3	2½	10	25		63	34½	8	12	1	48	10
October			13	22	10½				20	23	9		8	12
November							8½		10		2½			
December				4						8				10
Total	290½	130	147	302½	280½	320½	116½	150½	99½	408	155½	119	219	288

TABLE III—Continued.

Month.	1838.	1839.	1840.	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.	1850.	Mean.
	Hours.	*Hours.*	*Hours.*	*Hours.*	*Hours.*	*Hours.*	*Hours.*	*Hours.*	*Hours.*	*Hours.*	*Hours.*	*Hours.*	*Hours.*	*Hrs. m.*
January						3				1				2 00
February				3		1								18
March	8					2	8						3	1 36
April			48		13	19		18	27¼	7¼		4		11 31
May	22		11¼	132		45	8	87	54¼	43	1¼	17	64	34 22
June	20	34		62	111	169	69	100	94¼	76	44	127	95	56 33
July	39	58	60	23	2	54	8	125	19	35	38	18	55	48 11
August	59	24¼	18	77	22	7	4	44	29	12	7	13	96	29 58
September		3	15	6	10	41¼	27	26		9	4		24¼	16 20
October		6		10	13	38¼	4	17	15	3	9		14¼	11 45
November						8	8				8		10	2 02
December	12					2						7	3	1 42
Total	160	125¼	152¼	313	171	390	136	417	239¼	186¼	111¼	185	295	215 55

The most remarkable years, it will be seen, were 1832 and 1843, in the former of which the precipitation took place during only 99½ hours, or 106 hours less than the average; and in the latter, the 174½ hours in excess of the annual mean were distributed through every month of the year.

The only other observations made prior to our arrival, and that are known to have been published, may be found in the "*Repertorio Chileno, año de* 1835," printed at Santiago, and in the "*Anales de la Universidad,*" published at the same city. The former embraces records of observations of a barometer, thermometer, Saussure's hygrometer, direction and force of the wind and condition of the sky, the register extending from February 15 to May 13, 1835. Although the instruments are said to have been compared at Paris, an analysis of the individual results inspires too little confidence to warrant their use as comparative data. The editor of the volume tells us, however, that, from the commencement of spring to the middle of autumn, from Copiapó to Talca, the air is perfectly dry, it being rare that any others than light rains fall in any year; that the rainy season sets in regularly about the end of April and continues until the middle of September; and that in the province of Coquimbo it only rains two or three times in the year for a few hours at a time, whilst in Aconcagua, Santiago, and Colchagua, two, three, or four consecutive days of rain are followed by twelve, fifteen, or twenty of clear weather; and so on, progressively increasing to the extremity of Chilóe, where rain falls all the year, and for entire months at a time.

Since the return of the Astronomical Expedition from Chile, the subject of meteorology has become one of exciting interest, and there are now intelligent and constant observers who are supplied with instruments at Port Bulnes, in the straits of Magellan, Valdivia, Concepcion, Valparaiso, Santiago, and Serena, besides a corps at different points from Copiapó to Ancud, who devote themselves especially to earthquake phenomena. Already returns have been received by the University from several of the stations, and the meteorological student will find them in the volumes for 1854–1855, which have been published by that establishment.

The observations in the "*Anales*" above mentioned were for the year 1849; and having been made by Professor Domeyko, with approved instruments and great care, they merit every consideration. A summary of the results is therefore inserted here, the reader being referred for details to the volume for 1851, pages 222, 223.

TABLE IV.

Meteorological Summary for 1849. *Santiago de Chile.*

Barometer at 32° Fahrenheit.

	9—10 A. M.	3—4 P. M.	Maximum.	Minimum.	Greatest diurnal oscillation.	Mean.
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
January . . .	28.091	28.058	28.166	28.000	0.102	28.074
February . . .	.042	.009	.158	27.898	.087	.024
March	.066	.029	.166	27.634	.102	.048
April	.141	.094	.319	28.000	.102	.114
May	.137	.109	.249	27.961	.122	.123
June	.163	.141	.524*	.965	.134	.152
July	.147	.122	.532*	.870	.260	.135
August . . .	.219	.213	.574*	.977	.268†	.216
September . .	.170	.147	.267	.965	.158	.158
October . . .	.165	.147	.284	.981	.094	.156
November . .	.069	.039	.189	27.949	.094	.054
December . . .	.118	.078	.229	28.004	.087	.098
Means . . .	28.126	28.099				28.113

* At the hour of minimum. † After an earthquake.

TABLE V.

Temperature, clouds, and rain.

1849.	Mean max.	Mean min.	Highest temp.	Lowest temp.	Greatest change in 24 hrs.	Mean temp.	Number of cloudy days.	Inches of rain.
	°	°	°	°	°	°		
January	83.5	64.0	92.3	57.0	28.4	73.8		
February	84.0	58.0	92.3			71.0		
March	79.0	59.8	86.7	53.2	24.0	69.4	7	
April	70.2	52.0	78.8	47.0	24.5	61.1	9	
May	61.2	48.0	76.7	43.7	23.2	54.6	16	1.891
June	56.6	44.8	64.8	37.2	20.2	50.7	14	6.009
July	55.4	43.8	65 3	39.4	22.0	49.6	15	1.615
August	55.8	42.6	67.8	34.0	26.0	49.2	11	1.773
September . . .	60.8	46.4	69.4	41.5	27.7	53.6	21	.236
October	66.8	49.9	75.6	45.5	31.5	57.9	6	.315
November . . .	78.8	59.5	88.3	50.5	30.2	69.1	7	.670
December	76.6	56.8	86.0	49.7	26.5	66.7	3	
Means	68.96	52.01				60.48	109	12.509

The residence of Professor Domeyko was in a portion of the city less subject to abnormal influences, and his instruments were probably forty feet nearer to the level of the ocean than ours. His records were in French measures, which have been converted into equivalent English values.

Frezier,* an experienced French engineer and mathematician in the service of Louis XIV, arrived at Valparaiso early in September, 1712, and remained there until May of the following year, surreptitiously making a visit to the capital during that time. He tells us, in several places, of want of rain during eight months of the year, and of the destruction of vegetation because of it, but otherwise is not more specific; and Abbé Molina, who was not less distinguished in the order (of Jesuits) to which he belonged, for literary attainments and knowledge of natural history, has minutely described† each climatic element, though without leaving data likely to elucidate more satisfactorily the question of change. The latter was a native of the country, and was fully competent to speak definitively; indeed, from the well known studious habits and acknowledged intelligence of the members of the society, it is remarkable that he has given us no instrumental results.

At the date of his work, (1787,) during the months of April to August, inclusive, in the central provinces rain usually fell for three or four days in succession, and was followed by fifteen to twenty days of pleasant weather. Although the temperature of the air during rainstorms was always higher than the mean for the season, and the winds were invariably in the opposite direction to the ordinary atmospheric current, they were never accompanied by electrical phenomena or strong gales on the plain, though both were evident on the lofty Andean ranges. Then, as it does now, the southwest wind predominated. Then, he says, it never continued blowing with the same force all day, but as the sun approached the meridian the strength of the wind considerably decreased, freshening up again as the former declined. At noon, it frequently gave place to a quick breeze from the sea, which lasted for two or three hours, and was so regular as to be called "el vienticillo," or "*reloj de las gentes del campo*," (the little wind, or countryman's clock,) because it served farmers to know their dinner hour. Although the sky might be perfectly clear in that direction, if the wind shifted to the north of west, then, as now, so certain was change, that it gave rise to the proverbial distich—

"Norte claro, sur oscuro
Aguacero seguro."

(When clear to north, with south obscure,
Of long rain-showers one may be sure.)

Whilst the increase of cultivated and shaded surface in the central provinces is believed to have greatly augmented the annual number of cloudy and rainy days there,‡ Captain King,§ as has already been quoted, and Dr. Philippi,‖ were assured by old residents, that Concepcion and Chiloe were certainly becoming drier with the progress of cutting down the forests. The effects in each case being philosophically inferrible from the assigned cause, in the absence of more specific information, we are bound to credit popular belief.

Though written more particularly for the general reader, perhaps meteorologists may also be interested in Chapter 3, volume 1, where the present climate of Chile is treated of at length.

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* Relation du voyage de la mer du sud aux côtes du Chily et du Perou: Paris, 1716.

† Saggio della Storia del Chile. Bologna.

‡ A friend writing to me from Santiago, under date November 13, 1855, says: "Up to this time we have rarely had a sunshiny day, and at daylight, almost every morning, there is a drizzling rain. Moreover, we have thunder-storms in the afternoon, just as they do at Mendoza."

§ Surveying voyage of H. M. S. Adventure and Beagle, volume 1: London.

‖ Anales de la Universidad, Marzo, 1851.

INSTRUMENTS AND OBSERVATIONS.

The meteorological observations were all made at our residence, whose situation near Santa Lucia has already been mentioned. Its location was unfavorable for the observation of accurate thermometric changes, no less than for proper appreciation of the course of the wind. Being in a sort of gorge between Santa Lucia and San Cristoval spur, and near the river Mapocho, it was subject to greater amounts of radiant heat and to inflections of the atmospheric current by day, whilst the proximity of a rapid volume of snow-water most probably influenced the night temperature.

During the earlier observations all the thermometers were arranged under an open corridor of the ground-floor, which faced a small court-yard near the centre of the dwelling; but it was soon found that the heat radiated from the paved surface was sensibly too great, and they were removed to a balcony on the south front of the second story.

BAROMETER.

The barometer was made at the office of the United States Coast Survey, after the form of Mr. F. R. Hassler, described in Senate document No. 225, 2d session 27th Congress, (April, 1842.) The tube is sixty-five (0.65 inch) hundredths of an inch in its internal diameter, and was suspended from a strong bracket in an angle of the wall. A narrow brass ferrule, furnished at top with a hinged loop, is made to press the tube closely by a pinching screw at the side of the ferrule, and the latter is prevented from binding unequally by a bit of chamois leather inserted between it and the glass. To the lower end of the tube there is cemented a steel ferrule, made with two flat prongs diametrically opposite each other, and which extend half an inch below the glass. Each prong or leg has a slit intended for the passage of a packing wedge of the same metal, and the tube is closed by a steel plate furnished with a leather cushion, this last pressed somewhat into the tube by means of the wedge. Only the lower ferrule is permanently secured to the tube.

The cistern used was a glazed earthenware cup, sufficiently large to permit insertion of the fingers for removal of the packing wedge and plate when the lower extremity of the tube hung within it. It rested on a little shelf secured in an angle of the wall, and at twenty feet above the ground.

A stout plate of brass, firmly screwed to the top of the bracket, from which the tube is suspended, has two apertures—one oblong, the other circular—and the two about one inch apart. The former freely admits a flat screw having a hook at its lower extremity, that has motion in a horizontal plane, the upper or screw portion passing through a milled-head screw, by which it may be moved vertically. When the loop of the upper ferrule is hung upon the hook, the barometer tube assumes a vertical line by its own gravity.

The scale for measuring the height of the column of mercury hangs beside and to the left of the tube. It consists of a steel rod, one-fourth of an inch in diameter, with a very fine screw cut upon its upper end, and a zero mark perhaps half an inch from the lower extremity. The screw end passes freely through the second aperture in the brass bracket-plate, where it is held by a thumb-screw, and the lower end slides easily through a light ivory float that rests on the surface of the mercury in the cistern. A silvered brass scale, divided to tenths of an inch, from twenty-five inches to thirty-one inches, is permanently secured to the upper extremity of the steel rod, so that one edge of the scale is beside the barometer tube. The scale is furnished with a vernier reading to .002 inch. It carries a slip of brass that partially encircles the tube, and is moved by a tangent screw. As the lower edges of the brass slip are in the same horizontal plane, if the eye also be placed in that plane it estimates very accurately when the edges form a tangent to the convex surface of the mercury in the tube. By construction, the

ivory float is precisely half an inch in height, and, consequently, the distance between the delicately cut zero line on the steel rod, and the divisions of the scale, is that amount less than the scale represents. For better reading at night it was found convenient to blacken the upper edge of the ivory float, and fill the zero line with white paint. Adjustments for zero, rendered necessary by fluctuations of the level of the mercury in the cistern, are effected by means of the thumb-screw at the top of the rod.

A thermometer temporarily secured to the tube, with its bulb immersed in the mercury of the cistern, serves to indicate the temperature of the column.

For transportation, the tube is furnished with a cylinder of wood that has an aperture lined with velvet, and within which it fits very accurately. The packing plate and steel wedge remain without the aperture. For additional security, the cylinder was placed on springs within an oblong box which was suspended by a handle at one end—the packed end of the tube uppermost—during the voyage (by steamer) from Washington to Baltimore, thence (by ship) to Valparaiso, and finally (in a cart) to Santiago. In the last journey there were guide cords to the bottom of the box to prevent it striking against the sides of the cart. On removing the packing plate at Santiago, it could not be perceived that any mercury had been lost during the several transportations; and the tube was not only full, but the column continued wholly free from air. Nevertheless, to insure absolute repletion on reversal, a few drops of distilled mercury were added, though only to be pressed out on replacing the packing plate and wedge.

The bracket having been fastened to the wall in the office room at a suitable elevation for reading of the barometer scale, and the shelf for the cistern having been placed at the proper distance below it, the ferrule with the suspension loop was carefully put on whilst the tube was still in an inverted position. The barometer was then reversed; its lower extremity was immersed to the depth of an inch in mercury which had been poured into the earthenware cistern; and the tube and cup being lifted together to the places prepared for them, the former was elevated by means of the screw until it swung freely above the bottom of the latter. The packing wedge being next pushed out, the plate was removed, and the barometric column descended to the height with which a column of the atmosphere of like diameter was in equilibrium at the time. When the steel rod with its scale and ivory float were hung beside it, the instrument was ready for use.

At the termination of the observations in September, 1852, the barometer was taken down, transported to a room of the INSTITUTO NACIONAL, and remounted there. To do this, the tube was lowered to the bottom of the cistern, and being unhooked, it was slowly inclined until entirely filled with mercury that flowed in from the latter. Whilst in this condition the packing plate and wedge were inserted, and the upper ferrule being removed, the tube was placed in its wooden cylinder, and conveyed by me to its new location. It was remounted with all the care already detailed.

As the mercury had been boiled in the tube, and the effect of capilarity for a diameter of 0.65 inch is less than 0.002 inch, no correction therefor has been applied in the reduction of the observations. Nor is any correction required on account of the difference of the diameters of the tube and cistern, because, by means of the ivory float and thumb-screw sustaining the steel rod, the zero of the scale is adjusted to the surface of the mercury in the cistern, and the distance between it and the top of the column is directly measured.

The correction for difference between the temperature at the time of observation and at 32° Fahrenheit consists of two parts, one of which depends on the change of specific gravity of the mercury in the tube, and the other on alterations of the measuring scale. The dilatation of mercury from the freezing to the boiling points of water being .018018, or .0001001 for each degree of Fahrenheit, if we represent the height of the barometric column by h, and its temperature by t, the reduction to 32° will be

$$-.0001001\,(t-32^\circ)\,h;$$

and the linear expansion of steel for one degree Fahrenheit being .0000060, the correction due to alterations of the measuring rod will be

$$-.0000060\ (t-32^\circ)\ h.$$

The following table contains the corrections used in the reductions, and which were computed by the preceding formulas for a mean height of the barometer of 28.0 inches:

TABLE VI.

Corrections applied to readings of the barometer to reduce the observations to 32° *Fahrenheit.*

Attached thermometer.	Correction.	Attached thermometer.	Correction.	Attached thermometer.	Correction.	Attached thermometer.	Correction.
°		°		°		°	
33	— .003	48	— .048	62	— .089	76	— .131
34	.006	49	.051	63	.092	77	.134
35	.009	50	.053	64	.095	78	.137
36	.012	51	.056	65	.098	79	.140
37	.015	52	.059	66	.101	80	.143
38	.018	53	.062	67	.104	81	.146
39	.021	54	.065	68	.107	82	.149
40	.024	55	.068	69	.110	83	.152
41	.027	56	.071	70	.113	84	.154
42	.030	57	.074	71	.116	85	.157
43	.033	58	.077	72	.119	86	.160
44	.036	59	.080	73	.122	87	.163
45	.039	50	.083	74	.125	88	.166
46	.042	61	— .086	75	— .128	89	— .169
47	— .045						

THERMOMETERS.

All the thermometers, except that attached to the barometer and the self-registering for radiation to the sky, were enclosed within boxes of light boards, open at the bottom, and suspended under a balcony on the south front of the house. These enclosing boxes cut off radiant and reflected heat from opposite walls and roofs, whilst their construction permitted free circulation of air about the bulbs. They were hung at the height of the observer's eye, within a space of five feet, and about twenty feet above the level of the street. In order to avoid direct action of the sun upon them during a part of the summer months, it was necessary to remove the thermometers to the north side of the house for the 6 P. M. observations, and they remained there until after the 6 A. M. records. The dates of the removals are duly entered in the journals.

Standard thermometer.—The temperature of the air was noted by a standard thermometer made by Henry Barrow & Co., London. Its scale is of silvered brass, 14.8 inches in length, and is apparently divided with care to 0.5° Fahrenheit, from — 43° to + 232°. It is enclosed in a mahogany case with a sliding front of glass, which last was removed when the thermometer was suspended within the outer box.

Wet and dry bulb thermometers.—The psychrometer used was made by Bunten, of Paris. Each thermometer tube is enclosed within a cylinder of glass twelve inches in length, the lower extremity of which is joined to the tube by fusion. The upper ends of the cylinders are closed with ferrules and caps of brass, and one is suspended on each side of a wooden upright fitted with a heavy metallic base. The centigrade scales, divided on paper to 0.2°, from — 5° to + 32°, are enclosed within the cylinders. A table of Fahrenheit equivalents was computed and inserted in the journal for immediate reference.

TABLE VII.

Equivalents, Centigrade and Fahrenheit thermometric scales.

Cent.	Faht.	Cent.	Faht.	Cent.	Faht.	Cent.	Faht.	Cent.	Faht.	Cent.	Faht.	Cent.	Faht.	Cent.	Faht.
°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°
−5.0	23.0	+0.0	32.0	+5.0	41.0	+10.0	50.0	+15.0	59.0	+20.0	68.0	+25.0	77.0	+30.0	86.0
.8	23.4	.2	32.4	2	41.4	.2	50.4	.2	59.4	.2	68.4	.2	77.4	.2	86.4
.6	23.7	.4	32.7	.4	41.7	.4	50.7	.4	59.7	4	68 7	.4	77.7	.4	86 7
.4	24.1	.6	33.1	.6	42.1	.6	51.1	.6	60.1	.6	69.1	.6	78.1	.6	87.1
.2	24.4	.8	33.4	.8	42.4	.8	51.4	.8	60.4	.8	69.4	.8	78.4	.8	87.4
4.0	24.8	1.0	33.8	6.0	42.8	11.0	51.8	16.0	60.8	21.0	69.8	26.0	78.8	31.0	87.8
.8	25.2	.2	34.2	.2	43.2	.2	52.2	.2	61.2	.2	70.2	.2	79.2	.2	88.2
.6	25.5	.4	34.5	.4	43.5	.4	52.5	.4	61.5	.4	70.5	.4	79.5	.4	88.5
.4	25.9	.6	34.9	.6	43 9	.6	52 9	.6	61.9	.6	70.9	.6	79.9	.6	88.9
.2	26.2	.8	35.2	.8	44.2	.8	53.2	.8	62.2	.8	71.2	.8	80 2	.8	89.2
3.0	26.6	2.0	35.6	7.0	44.6	12.0	53.6	17.0	62.6	22.0	71.6	27.0	80.6	32.0	89.6
.8	27.0	.2	36.0	.2	45.0	.2	54.0	.2	63.0	.2	72.0	.2	81 0	.2	90.0
.6	27.3	.4	36.3	.4	45.3	.4	54.3	.4	63.3	.4	72.3	.4	81.3	.4	90.3
.4	27.7	.6	36.7	.6	45.7	.6	54.7	.6	63.7	.6	72.7	.6	81.7	.6	90.7
.2	28.0	.8	37.0	.8	46.0	.8	55.0	.8	64.0	.8	73.0	.8	82.0	.8	91.0
2.0	28.4	3.0	37.4	8.0	46.4	13.0	55.4	18.0	64.4	23 0	73.4	28.0	82.4	33.0	91.4
.8	28.8	.2	34.8	.2	46.8	.2	55.8	.2	64.8	.2	73.8	.2	82.8	.2	91.8
.6	29.1	.4	38.1	.4	47.1	.4	56.1	.4	65.1	.4	74.1	.4	83.1	.4	92.1
.4	29.5	.6	38.5	.6	47.5	.6	56.5	.6	65.5	.6	74.5	.6	83.5	.6	92.5
.2	29.8	.8	38.8	.8	47.8	.8	56.8	.8	65.8	.8	74.8	.8	83.8	.8	92.8
1.0	30.2	4.0	39.2	9.0	48.2	14.0	57.2	19.0	66.2	24.0	75.2	29.0	84.2	34.0	93.2
.8	30.6	.2	39.6	.2	48.6	.2	57.6	.2	66 6	.2	75.6	.2	84.6	.2	93.6
.6	30.9	.4	39 9	.4	48.9	.4	57.9	.4	66.9	.4	75.9	.4	84.9	.4	93.9
.4	31.3	.6	40.3	.6	49.3	.6	58.3	.6	67.3	.6	76.3	.6	85.3	.6	94.3
−1.2	31.6	+4.8	40.6	+9.8	49.6	+14.8	58.6	+19.8	67.6	+24.8	76.6	+29.8	85.6	+34.8	94.6

The bulb of one of the thermometers was enveloped in thin muslin, which was kept constantly moistened by the capillary action of a short piece of lampwick that dipped in the water of a bird-glass fitted on the wooden upright.

Maximum and minimum self-registers.—The self-register for the maximum temperature is a mercurial thermometer with a cylindrical bulb, three and a half inches long, and four-tenths of an inch in diameter, the tube being bent so that the bulb lies parallel with it. Its scale is divided on boxwood to 1° Fahrenheit, from 0° to 140°, and its register index is a short piece of blue steel wire. The self-register for the minimum temperature is of slightly colored but transparent alcohol, with a bulb of the same dimensions and position with respect to its tube as the preceding. Its scale also is of similar material, and equally minute in its divisions, from —10° to +140° Fahrenheit. Its register is a small float of dark glass with a knob at each end. The two instruments were made by Henry Barrow & Co., London, and may be secured together by a long brass pin that passes through the frame of one and screws into the other, or they may be suspended separately. They were used together, and the floats were adjusted after the observations at midnight.

Radiation thermometers.—The thermometer for radiation to the sky is of alcohol, with a transparent bulb placed in the focus of a plated and burnished parabolic mirror. Its divisions are engraved on the tube to 1° Fahrenheit from 0° to 150°. Its register index is a delicate cylinder of colored glass, with a small knob at each end. The mirror rests on a ball and socket-joint that permits it to be directed to any portion of the sky, and when in use the instrument was placed upon the ground, above which the base of the ball and socket-joint elevates it about five inches. There was no suitable place for this instrument on our premises. Radiation from the heated walls of the court-yards was probably unceasing during clear weather ; and as soon as this became absolutely certain, observations were discontinued, and the thermometer being

removed from the mirror and suspended horizontally, its bulb was wrapped with muslin and kept moistened. It thus served as a registering thermometer for the minimum temperature of evaporation, and was placed beside the psychrometer. *Solar:* There were two registering thermometers, with blackened bulbs, made for the Expedition by Mr. Barrow; but one of them was broken in the transportation, and the second was accidentally destroyed within a day or two after unpacking it.

Winds.—A vane, with an attached pressure-plate, communicating motion to a fine graduated chain that led into the office, was erected on the roof above, but it proved worse than useless. It has been stated that the position of our residence was unfavorable for accurate estimation of the direction of the winds; indeed, there is probably no point of the city of Santiago where atmospheric currents are not influenced by the hills already named, and two others just without the northern and northwestern limits. Here the vane was whirled to every point of the compass but the true one; and therefore, during the day, the direction was taken from that of the flag hoisted at the castle on the western escarpment of Santa Lucia, the line in which smoke travelled, or, from the plane in which the slender poplars near us were inclined. At night, when these objects were no longer visible, there was even greater uncertainty, but then the currents were invariably both light and from the Andes. As there was no anemometer, (the pressure-plate failing with the vane,) the relative force is entirely derived from estimate of the effect of the wind on surrounding objects, 0 denoting a calm, 1 a very light breeze, and so on to 10—a strong gale.

Clouds.—The amount of sky hidden by clouds is merely a naked-eye estimate, 0 representing cloudless, and 10 entire obscuration. This is not strictly true of the first symbol in all cases, for during summer, and a portion of the spring and autumn, so long as the day-breeze continues, a low bank of heavy cumuli almost invariably remains over the Andes E.N.E. of the city, and these are not mentioned in the column "clouds" unless the apparent elevation and mass are remarkable. However, the fact that such clouds were perceptible is duly stated in a side-note. As no such clouds are regularly formed at the same time above the summits of the western cordilleras, the phenomenon is the more striking. The nomenclature of Howard has been adopted, C., K., S., N., being symbols for the forms of clouds which he denominates cirrus, cumulus, stratus, nimbus; and the double letters C. S., C. K, &c., their combinations to indicate cirro-stratus, cirro-cumulus, &c.

Rain-gauge.—The rain-gauge was made of stout sheet-copper, by Messrs. Pike & Son, of New York. It was a simple cylinder-gauge, six inches in diameter, soldered to an inverted cone of six inches perpendicular height. There was an aperture at the apex of the cone through which the rain-water passed to a receiving bottle as fast as it descended, the gauge being maintained perpendicularly and firmly on the bottle by a deep flange that clasped the neck. The instrument was placed upon the ground within our premises, and the quantity of water collected was measured at midnight, or oftener, in a graduated glass cylinder of about one inch diameter. As the ratio of the receiving to that of the measuring cylinder was as more than forty to one, very small quantities could be determined with accuracy.

Personnel.—Until the 13th September, 1850, the meteorological journal was in charge of Passed Midshipman H. C. Hunter and captain's clerk E. R. Smith, each of whom alternately made the records during twenty-four hours, commencing with the observations at 6 A. M. An accident prevented the former from performing his portion of the duty between January 20 and March 28, 1850; and after September 13 of that year, when he returned to the United States, Mr. Smith alone was responsible. Every member of the Expedition was expected to enter remarkable phenomena that occurred under his notice, and many such will be found with initials annexed to designate the individual.

The tabular results were computed by Assistant E. F. Phelps.

ABSTRACTS AND COMMENTS

OF THE

HOURLY METEOROLOGICAL OBSERVATIONS ON TERM-DAYS.

TABLE VIII.

Mean atmospheric pressure at every hour of the day, deduced from the term-day observations. Barometer readings reduced to 32°.

Observation hour.	January.	February.	March.	April.	May.	June.	July.	August.	Septem'r.	October.	Novem'r.	Decem'r.	Annual means.
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
1 A. M.	a 27.998	a 27.996	a 27.929	a 28.018	a 28.151	a 28.167	a 28.217	a 28.216				a28.096	
2	a .915	a .985	a .921	a 28.001	a .157	a .168	a .207	a .205				a .077	
3	a .939	a .983	a .920	a 27.991	a .131	a .140	a .203	a .198				a .064	
4	a .967	a .987	a .922	a .981	a .146	a .136	a .162	a .198				a .064	
5	a .965	a 27.992	a 27.928	a 27.982	a .151	a .141	a .149	a .197				a .045	
6	b .976	c 28.001	28.017	c 28.071	b .119	a .138	b .214	b .214	a28.149		b28.027	.087	
7	27.997	.005	b .058	b .100	.026	b .060	.133	.226	a .149	a28.221	a .091	a .069	28.095
8	28.008	.006	b .063	.176	.046	b .067	.151	.239	a .165	a .225	a .089	a .047	.108
9	.006	.002	b .053	.183	.065	b .057	.169	.247	a .159	a .230	b .038	b .097	.109
10	.004	28.005	b .045	.184	.075	b .083	.184	.248	a .150	a .234	a .095	a .031	.112
11	b .023	27.997	b .039	b .116	.075	b .094	.193	.242	a .129		a .092	a .132	
Noon.	28.000	.990	b .028	.109	.077	b .097	.189	.234	a .109	a .211	b .015	b .069	.094
1 P. M.	27.994	.980	b .016	.089	.064	b .089	.183	.212	a .080	a .195	b28.005	b .047	.078
2	.985	.962	b 28.000	.081	.055	b .102	.178	.211	a .063	a .186	b27.996	b .041	.072
3	.971	.952	b 27.992	.082	.054	b .107	.187	.217	a .048	a .177	b .982	b .032	.067
4	.963	.938	b .985	.080	.054	b .105	.194	.212	a .043	a .183	b .977	b .024	.063
5	.952	.930	b 27.991	b .062	.050	b .120	b .269	.222	a .040	a .180	b .971	b .010	.066
6	.960	.931	b 28.000	.081	.060	b .137	.209	.230	a .069	a .195	b .979	b .014	.072
7	.972	.951	b .007	.086	.063	b .164	.222	.241	a .063	a .206	b27.995	b .036	.084
8	.983	.968	b .018	.089	.064	b .181	.222	.239	a .065	a .222	b28.012	b .052	.093
9	.987	.976	b .018	.084	.061	b .166	.219	.236		a .214	b .016	b .071	
10	b .982	.975	b .012	.082	.062	b .191	.222	.237	a .072		b .013	b .075	
11	.980	.972	b .005	.077	.056	a .151	.218	.243	a .070		b .012	b .067	
Midn't.	27.975	27.967	b 28.002	28.076	28.054	b 28.192	28.221	28.241	a28.064	a28.168	b28.995	b28.053	28.084
Daily means	27.978	27.977	27.999	28.078	28.060	28.198	28.196	28.225				28.058	

a One observation. b Two observations. c Four observations

From the preceding table we learn that the mean daily motion of the mercurial column comprises two maxima and two minima. These are of unequal values. Of the former, the greater takes place about 8 A. M. local time during the summer months, (December, January, and February;) but through the autumn months, not until two hours later, or near 10 A. M. In winter the normal oscillations are very frequently masked by extraordinary fluctuations; whilst in spring, the hours are 8, 10, and 9 respectively for September, October, and November. In the average of the whole year, 10 A. M. coincides most nearly with the greater elevation of the column. The lesser maximum takes place in summer and autumn at 9 P. M., in winter at 10 P. M., and in spring at 8 P. M. During the winter months, the greater and lesser maxima are very often inverted; but the mean hour of the lesser maximum for the year is 9 P. M.

Of the minima, whilst the monthly results show that in seven of the twelve periods the greater of the two takes place at 5 P. M., the lowest mean depression for the whole year is found to be at 4 P. M. Examining the oscillation by seasons—in spring, summer, and autumn—there is uniformly least pressure at 5 P. M.; whilst the abnormal fluctuations of winter already mentioned throw forward the hour to 2 P. M. Between midnight and 6 A. M., there were term-day records only on nine of the twenty-seven days of observation—not a sufficient number to determine the period of the lesser minimum definitively; but most probably it does not differ much from 3 A. M.

These observations also point out an annual tide in the atmosphere whose maximum is in August, and minimum in February—a fact more positively demonstrated in the results of all the tri-hourly records, where the change of pressure amounts to $\frac{1}{25}$ part of the whole.

Comparing the numbers in the preceding columns with the daily means for each corresponding month deduced from all the tri-hourly observations, the following table is formed:

TABLE IX.

Excess of the atmospheric pressure at every hour above the mean daily pressure for the month, shown by the tri-hourly observations.

Observation hour.	January.	February.	March.	April.	May.	June.	July.	August.	Septem'r.	October.	Novemb'r.	December.
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
1 A. M.	— .022	— .022	— .106	— .061	+ .068	+ .050	+ .121	+ .088				+ .051
2	.105	.033	.114	.078	.074	.051	.111	.077				.032
3	.081	.035	.115	.088	.048	.023	.107	.070				.019
4	.053	.031	.113	.098	.063	.019	.066	.070				+ .019
5	.055	.026	.107	.097	.068	.024	.053	.069				.000
6	.044	.017	— .018	— .008	+ .036	+ .021	.118	.086	+ .035		— .025	+ .042
7	.023	.013	+ .023	+ .021	— .057	— .057	.037	.098	.035	+ .108	+ .039	.024
8	.012	.012	.028	.097	.037	.050	.055	.111	.051	.112	+ .047	.002
9	.014	.016	.018	.104	.018	.060	.073	.119	.045	.117	— .014	+ .052
10	— .016	.013	.010	.105	.008	.024	.088	.120	.036	.121	+ .043	— .014
11	+ .003	.021	+ .004	.037	.008	.023	.097	.114	+ .015		+ .040	+ .087
Noon.	.000	.028	— .007	.030	006	.020	.093	.106	— .005	.098	— .037	.034
1 P. M.	— .026	.038	.019	.010	.019	.018	.087	.084	.034	.082	.047	+ .002
2	.035	.056	.035	.002	.028	.015	.082	.083	.051	.073	.053	— .004
3	.049	.066	.043	.003	.029	.010	.091	.089	.066	.064	.070	.013
4	.057	.080	.050	+ .001	.029	— .012	.098	.084	.071	.070	.075	.021
5	.068	.088	.044	— .017	.033	+ .003	.173	.094	.074	.067	.081	.035
6	.060	.087	.035	+ .002	.023	.020	.113	.102	.045	.082	.073	.031
7	.048	.067	.028	.007	.020	.047	.126	.113	.051	.093	.057	— .009
8	.037	.050	.017	.010	.019	.064	.126	.111	.049	.109	.040	+ .007
9	.033	.042	.017	.005	.022	.069	.123	.108		.101	.036	.026
10	.057	.043	.023	+ .003	.021	.074	.126	.109	.042		.039	.030
11	.040	.046	.030	— .002	.027	.034	.122	.115	.044		.040	.022
Midn't.	— .045	— .051	— .033	— .003	— .029	+ .075	+ .125	+ .113	— .050	+ .055	— .057	+ .008

TABLE X.

Mean temperature of the air at every hour of the day, deduced from the term-day observations.

Observation hour.	January.	February.	March.	April.	May.	June.	July.	August.	September	October.	Novemb'r.	Decemb'r.	Annual means.
	°	°	°	°	°	°	°	°	°	°	°	°	°
1 A. M.	*b* 62.2	*a* 71.3	*a* 60.8	*a* 50.0	*a* 45.5	*a* 42.3	*a* 36.9	*a* 48.4				*a* 64.9	
2	*a* 60.8	*a* 70.0	*a* 59.0	*a* 49.3	*a* 44.5	*a* 42.3	*a* 36.2	*a* 48 6				*a* 63.7	
3	*a* 61.0	*a* 69.1	*a* 60.6	*a* 48.4	*a* 43.0	*a* 41.8	*a* 35.1	*a* 48 8				*a* 61.0	
4	*a* 61.0	*a* 68.8	*a* 56.7	*a* 47.6	*a* 43.5	*a* 41.0	*a* 33.0	*a* 49.0				*a* 60.8	
5	*a* 60.8	*a* 68.6	*a* 55.9	*a* 46.6	*a* 42.5	*a* 41.2	*a* 32.1	*a* 49.1				*a* 61.2	
6	*b* 61.2	*c* 60.9	*b* 55.6	*c* 50.8	*b* 45.2	*a* 40.5	*b* 33.0	*b* 45.4	*a* 47.5		*b* 55.7	61 2	
7	62.9	63.7	*b* 58.3	*b* 53.5	46.3	*b* 47.1	41.6	45.3	*a* 54.4	*a* 55.1	*a* 54 5	*a* 61.0	53.64
8	65.9	68.7	*b* 64.9	56.2	49.9	*b* 47.3	42.0	48.3	*a* 54.8	*a* 56.8	*a* 55.6	*a* 68.4	56.57
9	69.3	71 9	*b* 67.6	57.7	51.6	*b* 46.8	44.1	52 1	*a* 56.5	*a* 58.8	*b* 60.2	*b* 66.6	58.60
10	71.4	73.7	*b* 70.0	59.6	54.6	*b* 48.0	46.2	56.3	*a* 60.5	*a* 62.0	*a* 63.2	*a* 71.7	61.43
11	*b* 70.7	76.6	*b* 72.5	*b* 60.6	56.2	*b* 48.2	48.1	57.2	*a* 63.8		*a* 64.7	*a* 68 7	62.65
Noon.	77.0	79.2	*b* 75.9	62 4	57.7	*b* 48.0	49.3	58.8	*a* 67.3	*a* 66.5	*b* 69.5	*b* 73.0	66 22
1 P. M.	78.7	81.9	*b* 77.7	64.4	58.8	*b* 48.0	49.9	60.3	*a* 70 3	*a* 67 0	*b* 71.8	*b* 75 2	67.00
2	80.2	83.7	*b* 79.3	65.6	60.0	*b* 48.3	50.2	61.6	*a* 72.3	*a* 68.1	*b* 73 7	*b* 77.0	68 33
3	81.2	84.8	*b* 80.3	65.4	57.6	*b* 48.1	50.0	60.6	*a* 73.0	*a* 69.5	*b* 74.5	*b* 77.0	68.33
4	80 5	84.8	*b* 80.4	64.5	58.1	*b* 48.0	49.8	60.2	*a* 73.3	*a* 68.4	*b* 73.0	*b* 76.9	68.16
5	80.0	83.7	*b* 79.9	*b* 63.5	57.2	*b* 46.4	*b* 44.9	58.2	*a* 72.4	*a* 65.7	*b* 71.5	*b* 76 3	66.64
6	77.7	80.9	*b* 75.0	60.5	54.2	*b* 46.0	45.8	55.1	*a* 65.1	*a* 62.5	*b* 68.3	*b* 76.4	63 87
7	73.1	76.8	*b* 71.0	58.6	51.4	*b* 45 9	43.4	52.3	*a* 63.5	*a* 58.4	*b* 62.6	*b* 71.9	60.24
8	70.6	73.0	*b* 66.0	57.9	50.7	*b* 45 5	42.3	50.5	*a* 62 0	*a* 56.5	*b* 59.1	*b* 69.6	58 64
9	68.5	71.1	*b* 66.1	56.1	49.2	*b* 44.7	41.6	49.5		*a* 56.6	*b* 57.9	*b* 67.0	57.29
10	*b* 66.2	69.5	*b* 64.8	54.9	49.6	*b* 44 3	41.1	49.1	*a* 58.4		*b* 56.9	*b* 65.9	
11	65 1	68 6	*b* 64 3	54.8	49.0	*a* 42.5	40 1	47 5	*a* 56.9		*b* 55 8	*b* 64.9	
Midn't.	63.7	66.8	*b* 63.8	54.4	46.5	*b* 43.3	39.4	46.5	*a* 55.4	*a* 51.0	*b* 55.0	*b* 64.0	54.15
Daily means.	69.58	73.67	67.77	56.80	50.95	45.23	42.38	52.34				68.89	

a One observation. *b* Two observations. *c* Four observations.

There is but one maximum and one minimum in the diurnal horary range of the temperature. Commencing with the spring months and terminating with those of autumn, the instant of the former ranges between three hours and four hours P. M., though it more frequently occurs nearer to the first than to the last-named hour. In winter, as might be inferred, the maximum takes place an hour earlier, or about 2 P. M.

The observations do not permit us to fix so definitively the hour of minimum temperature in all the months. There were no records between midnight and 6 A. M. in any of the months of September, October, and November; but during the twenty-one term-days kept, it was colder at 6 A. M. than at any other hour.

In all the year the greatest heat is from 3 P. M. to 4 P. M. in February, and the greatest cold from 5 A. M. to 6 A. M. of July. March is subject to the greatest diurnal range, and June to the least; though, if we take the indications of the register thermometers instead of the hourly observations, their mean results show greater fluctuations in November than in March, and these are probably entitled to greater confidence than deductions from the two term-days of 1850 and 1851.

Comparing the yearly temperatures of each hour with the monthly temperatures at corresponding hours, remarkable accordance is found between the April and November observations; and if the mean annual temperature were to be deduced from the observations of a single month, April would give the nearest approximation; October next. Of the hours, the mean observations in all the months, either at 9 A. M. or 8 P. M., differs less than 1° from the mean annual temperature.

Adopting as the mean temperatures of the several months at Santiago, those found by combining all the tri-hourly, self-register, and hourly observations with equal weight, the excess of the temperature at each hour of the day is shown in the following table:

TABLE XI.

Excess of the temperature at each observation hour above the mean monthly temperature.

Observation hour.	January.	February.	March.	April.	May.	June.	July.	August.	Sept'ber.	October.	Novemb'r.	Decemb'r.
	°	°	°	°	°	°	°	°	°	°	°	°
1 A. M.	— 8.3	— 0.4	— 6.4	— 8.2	— 7.4	— 5.4	— 9.2	— 3.7				— 4.4
2	9.7	1.7	8.2	8.9	8.4	5.4	9.9	3.5				3.5
3	9.5	2.6	6.6	9.8	9.9	5.9	11.0	3.3				5.7
4	9.5	2.9	10.5	10.6	9.4	6.7	13.1	3.1				7.4
5	9.7	3.1	11.3	11.6	10.4	6.5	14.0	3.0				7.6
6	9.3	10 8	11.6	7.4	7.7	7.2	12.0	8.7	— 8.9		— 9.2	7 2
7	7.6	8.0	8.9	4.7	6.6	0.6	4.5	6.8	± 0.0	— 3.0	10.5	— 7.4
8	4.6	— 3.0	— 2.3	2.0	3.0	0.4	4.1	— 3.8	+ 0.4	— 1.3	9.4	0.0
9	— 1.2	+ 0.2	+ 0.4	— 0.5	— 1.3	— 0.9	— 2.0	0.0	2.1	+ 0.7	4.8	— 1.8
10	+ 0.9	2.0	2.8	+ 1.4	+ 1.7	+ 0.3	+ 0.1	+ 4.2	6.1	3.9	1.8	+ 3.3
11	0.2	4.9	5.3	2.4	3.3	0.5	2.0	5.1	9.4	6.4	— 0.3	0.3
Noon.	6.5	7.5	8.7	4.2	4.8	0.3	3.2	6.7	12.9	8.4	+ 4.5	4.6
1 P. M.	8.2	10.2	10.5	6.2	5.9	0.3	3.8	8.2	15.9	8.9	6.8	6.8
2	9.7	12.0	12.1	7.4	7.1	0.6	3.1	9.5	18.1	10.0	8.7	6.6
3	10.7	13.1	13 1	7.2	4.7	0.4	3.9	8.5	18.6	11.4	9.5	8.6
4	10.0	13.1	13.2	6.3	5.2	+ 0.3	+ 3.7	8.1	18.9	10.3	8.0	8.5
5	9.5	12.0	12.7	5.3	4.3	— 1.3	— 1.2	6.1	18.0	7.6	6.5	7.9
6	7.2	9.2	7.8	2.3	+ 1.3	1.7	0 3	3.0	10.7	4.4	+ 3.3	8.0
7	2.6	5.1	+ 3.8	+ 0.4	— 1.5	1.8	2 7	+ 0 2	9 1	+ 0.3	— 2.4	3.5
8	+ 0.1	+ 1.3	— 1.2	— 0.3	2.2	2.2	3 8	— 1.6	7.6	— 1.6	5.9	+ 1.2
9	— 2.0	— 0.6	1.1	2.1	3.7	3.0	4.5	2.6	5.8	2.5	7.1	— 1.4
10	4 3	2.2	2.4	3.3	3.3	3.4	5.0	3.0	4.0		8.1	2.5
11	5.4	3.1	2.9	3.4	3.9	5.5	6.0	4.6	2.5		9.2	3.5
Midnight.	— 6.8	— 4.9	— 3.4	— 3.8	— 6.4	— 4.4	— 6.7	— 5.6	+ 1 0	— 7.1	—10.0	— 3.5

TABLE XII.

Mean temperature of evaporation at every hour of the day, deduced from the term-day observations.

Observation hour.	January.	February.	March.	April.	May.	June.	July.	August.	September	October.	Novemb'r.	Decemb'r.	Annual means.
	°	°	°	°	°	°	°	°	°	°	°	°	°
1 A. M.	*b* 52.4	*a* 55.4	*a* 55 2	*a* 48.4	*a* 42.8	*a* 40.3	*a* 33.1	*a* 46.0				*a* 52.0	
2	*a* 49.5	*a* 54.9	*a* 54.0	*a* 47.4	*a* 42.1	*a* 40 5	*a* 33.0	*a* 46.0				*a* 50.2	
3	*a* 50.0	*a* 55.2	*a* 52.7	*a* 47.2	*a* 41.2	*a* 39.5	*a* 32 3	*a* 46 2				*a* 50.2	
4	*a* 50.6	*a* 54.5	*a* 51 8	*a* 46.6	*a* 41.7	*a* 39.1	*a* 31.5	*a* 46.9				*a* 50.6	
5	*a* 50.9	*a* 54.9	*a* 51.5	*a* 45.5	*a* 40.5	*a* 39.5	*a* 30.9	*a* 46.8				*a* 50.6	
6	*b* 53.9	*c* 54.3	51.0	*c* 48 4	*b* 43.7	*a* 38.6	*b* 31.6	*b* 44.2	*a* 45.5	*a* 47.3	*b* 50.2	54 7	47.66
7	56 5	56 0	*b* 52.4	*b* 48.0	44.7	*b* 44.5	39.8	42.5	*a* 49.1	*a* 50.2	*a* 49.5	*a* 57.9	49.96
8	58.4	59.5	*b* 56.0	51.4	46.5	*b* 44 7	40.1	46.1	*a* 50.9	*a* 51.5	*a* 50.7	*a* 62.2	51.50
9	60.3	61.2	*b* 58.4	54.0	48.1	*b* 44.2	42.2	48.7	*a* 51.3	*a* 52.0	*b* 53.5	*b* 61.2	52.92
10	61.5	62.5	*b* 59.1	54.9	51.2	*b* 44.7	43.6	50.3	*a* 54.0	*a* 53.8	*a* 53.8	*a* 63.5	54.41
11	*b* 60.9	63.7	*b* 61.2	*b* 54.3	51.9	*b* 44.3	43.7	51.4	*a* 56.1		*a* 55.3	*a* 62.0	
Noon.	62 8	64.2	*b* 62.4	58 6	51 7	*b* 43 6	45.4	51.9	*a* 57.9	*a* 55.2	*b* 58.0	*b* 65.4	56.43
1 P. M.	62.5	64.2	*b* 62.7	56.0	52 5	*b* 43.3	45.4	52.1	*a* 60.1	*a* 55.4	*b* 59.2	*b* 64.3	56.48
2	63.0	64.1	*b* 63.0	57.6	53.1	*b* 43.8	45.5	52.8	*a* 59.9	*a* 56.3	*b* 59.1	*b* 63.8	56.83
3	63.1	63.9	*b* 62.6	57.7	52.7	*b* 43.7	45.3	52.6	*a* 60.3	*a* 57.4	*b* 59.6	*b* 64.9	56.98
4	63.2	64.1	*b* 63.1	57.1	53.0	*b* 43.4	45.4	51.7	*a* 60.3	*a* 56.1	*b* 59.1	*b* 63.5	56 67
5	64.0	64.2	*b* 63.1	*b* 55.0	52.1	*b* 43.7	*b* 40.4	50.6	*a* 59.7	*a* 56.3	*b* 59.3	*b* 60.4	55.73
6	62.4	63.5	*b* 62.1	55.1	50.5	*b* 43.2	42.8	49.8	*a* 58.1	*a* 55.6	*b* 57.7	*b* 60.5	55.11
7	60.7	61.4	*b* 60.3	54.0	48.2	*b* 43.0	40.9	48.4	*a* 57.4	*a* 53.8	*b* 55 6	*b* 59 7	53.62
8	59.8	60.7	*b* 58 8	53.6	47.3	*b* 42 8	39.7	47.0	*a* 56.5	*a* 52.5	*b* 53.7	*b* 58.6	52.58
9	59.0	59.8	*b* 57.6	52.9	47 1	*b* 42.1	39.6	46.5			*b* 53.1	*b* 57.6	
10	*b* 60 1	59.1	*b* 56.7	52.2	47.1	*b* 42.3	38.8	46.0	*a* 53.4		*b* 52.0	*b* 54.4	
11	57 3	57.7	*b* 56.1	52.3	46.6	*a* 40.8	38.0	43.4	*a* 52.9		*b* 51.6	*b* 53.8	
Midn't.	56.8	57.0	*b* 55.4	51.9	46.1	*b* 41.4	37.7	43.1	*a* 51.5	*a* 48.6	*b* 51.2	*b* 53.6	49.53
Daily means.	58.27	58.83	57.80	52.50	47.60	42.38	39.80	47.96				58 07	

a One observation. *b* Two observations. *c* Four observations.

Like the curve which will represent changes in the temperature of the atmosphere during a day, that, also, by which fluctuations in the relative humidity may be shown consists of but a single progression. As its maximum departure from the axis coincides with the hour of the day when we find the minimum temperature, and vice versa, these periods vary with the several months, but in the average of the year the first falls nearest to 6 A. M., and the last nearest to 3 P. M.

In the several months we find that the atmosphere approaches nearest to saturation in June, and is driest in February, the increase of relative humidity being regular from February to June, and the decrease uniform from June to February. These months likewise exhibit the greatest and least diurnal ranges.

The following table, containing the difference between the readings of the dry and wet thermometers at each hour of the day, will show these facts more clearly:

TABLE XIII.

Excess of the mean temperature of the air at every hour of the day, above the mean temperature of evaporation at the same hour, as shown by the term-day observations.

Observation hour.	January.	February.	March.	April.	May.	June.	July.	August.	September	October.	Novemb'r.	Decemb'r.	Annual means.
	°	°	°	°	°	°	°	°	°	°	°	°	°
1 A.M.	b 9.8	a 15.9	a 5.6	a 1.6	a 2.7	a 2.0	a 3.8	a 2.4				a 12.9	
2	a 11.3	a 15.1	a 5.0	a 1.9	a 2.4	a 1.8	a 3.2	a 2.6				a 12.5	
3	a 11.0	a 13.9	a 7.9	a 1.2	a 1.8	a 2.3	a 2.8	a 2.6				a 10.8	
4	a 10.4	a 14.3	a 4.9	a 1.0	a 1.8	a 1.9	a 1.5	a 2.1				a 10.2	
5	a 9.9	a 13.7	a 4.4	a 1.1	a 2.0	a 1.7	a 1.2	a 2.3				a 10.6	
6	b 7.3	c 6.6	4.6	c 2.4	b 1.5	a 1.9	b 1.4	b 1.2	a 2.0		b 5.5	6.5	
7	6.4	7.7	b 5.9	b 5.5	1.6	b 2.6	1.8	2.8	a 5.3	a 4.9	a 5.0	a 3.1	4.36
8	7.5	9.2	b 8.9	4.8	3.4	b 2.6	1.9	2.2	a 3 9	a 5.3	a 4.9	a 6.2	5.07
9	9.0	10.7	b 9.2	3.7	3.5	b 2.6	1.9	3.4	a 5.2	a 6.8	b 6.7	b 5.4	5.68
10	9.9	11.2	b 10.9	4.7	3.4	b 3.3	2.6	6.0	a 6.5	a 8.2	a 9.4	a 8.2	7.03
11	b 10.5	12.9	b 11.3	b 6.3	4.3	b 3.9	4.4	5.8	a 7.7		a 9.4	a 6.7	
Noon.	14.2	15.0	b 13.5	3.8	6.0	b 4.4	3.9	6 9	a 9.4	a 11.3	b 11.5	b 7.6	8.96
1 P. M.	16.2	17.7	b 15.0	8.4	6.3	b 4.7	4.5	8.2	a 10.2	a 11.6	b 12.6	b 10.9	10.53
2	17.2	19.6	b 16 3	8.0	6.9	b 4.5	4.7	8.8	a 12.4	a 11.8	b 14.6	b 13.2	11.50
3	18.1	20.9	b 17.7	7.7	4.9	b 4.4	4.7	8.0	a 12.7	a 12.1	b 14.9	b 12.1	11.52
4	17.3	20.7	b 17.3	7.4	5.1	b 4.6	4.4	8.5	a 13.0	a 12.3	b 13.9	b 13.4	11.50
5	16.0	19.5	b 16.8	b 8.5	5.1	b 2.7	b 4.5	7.6	a 12.7	a 9.4	b 12.2	b 15.9	10.91
6	15.3	17.4	b 12.9	5.4	3.7	b 2.8	3.0	5.3	a 7.0	a 6.9	b 10.6	b 15.9	8.85
7	12.4	15.4	b 10.7	4.6	3.2	b 2.9	2.5	3.9	a 6.1	a 4.6	b 7.0	b 12.2	7.13
8	10.8	12.3	b 7.2	4.3	3.4	b 2.7	2.6	3.5	a 5.5	a 4.0	b 5.4	b 11.0	6.06
9	9.5	11.3	b 8.5	3.2	2.1	b 2.6	2.0	3.0			b 4.8	b 9.4	
10	b 6.1	10.4	b 8.1	2.7	2.5	b 2.0	2.3	3.1	a 5.0		b 4.9	b 11.5	
11	7.8	10.9	b 8.2	2.5	2.4	a 1.7	2.1	4.1	a 4.0		b 4.2	b 11.1	
Midn't.	6.9	9.8	b 8.4	2.5	0.4	b 1.9	1.7	3.4	a 3.9	a 2.4	b 3.8	b 11.4	4.71
Daily means.	11.28	13.71	9.97	4.30	3.35	2.85	2.89	4.49				10.35	

a One observation. b Two observations. c Four observations.

TABLE XIV.

Mean direction of the wind at every hour of the day, deduced from the term-day observations.

Observation hour.	January.	February.	March.	April.	May.	June.	July.	August.	Septem'r.	October.	Novemb'r.	Decemb'r.	Annual means.
	°	°	°	°	°	°	°	°	°	°	°	°	°
1 A.M.	*b* 315	*a* 337	*a* 45	*a* 315	*a* 45	*a* 78	*a* 0	*a* 135				*a* 180	
2	*a* 0	*a* 315	*a* 90	*a* 360	*a* 90	*a* 292	*a* 360	*a* 157				*a* 280	
3	*a* 0	*a* 315	*a* 45	*a* 315	*a* 90	*a* 315	*a* 360	*a* 112				*a* 270	
4	*a* 45	*a* 315	*a* 135	*a* 45	*a* 45	*a* 180	*a* 360	*a* 112				*a* 0	
5	*a* 45	*a* 45	*a* 180	*a* 360	*a* 360	*a* 45	*a* 360	*a* 112				*a* 0	
6	*b* 22½	*c* 45	*b* 45	37	*b* 360	*a* 45	*a* 192	*b* 225	*a* 315		*b* 292	0	
7	270	90	*b* 45	*b* 112	360	*b* 157	270	255	*a* 315	*a* 45	*a* 225	*a* 0	179
8	270	307	*b* 45	*b* 112	45	*b* 112	210	315	*a* 315	*a* 45	*a* 157	*a* 0	161
9	270	217	*b* 247	*b* 135	112	*b* 112	345	255	*a* 315	*a* 315	*b* 225	*b* 270	235
10	225	232	*b* 180	*b* 112	135	*b* 202	336	214	*a* 315	*a* 270	*a* 225	*a* 225	222
11	*b* 270	240	*b* 259	*b* 135	165	*b* 157	292	229	*a* 192		*a* 180	*a* 180	
Noon.	240	240	*b* 259	*b* 225	157	*b* 157	270	236	*a* 192	*a* 133	*b* 225	*b* 247	215
1	231	236	*b* 225	*b* 225	247	*b* 157	285	233	*a* 225	*a* 225	*b* 225	*b* 247	230
2	231	236	*b* 225	*b* 225	247	*b* 157	285	236	*a* 225	*a* 225	*b* 237	*b* 247	231
3	231	240	*b* 225	*b* 247	240	*b* 67	285	225	*a* 180	*a* 270	*b* 225	*b* 247	223
4	231	232	*b* 225	*b* 203	240	*b* 135	200	251	*a* 292	*a* 225	*b* 225	*b* 247	225
5	225	225	*b* 225	*b* 208	247	*b* 270	*b* 90	150	*a* 236	*a* 237	*b* 247	*b* 225	215
6	255	232	*b* 191	*b* 208	90	*b* 247	159	172	*a* 192	*a* 237	*b* 225	*b* 225	202
7	225	150	*b* 213	*b* 112	75	*b* 146	120	139	*a* 192	*a* 225	*b* 192	*b* 192	165
8	210	78	*b* 191	*b* 292	75	*b* 112	90	94	*a* 315	*a* 225	*b* 192	*b* 192	172
9	191	75	*b* 191	*b* 11	30	*b* 112	90	109		*a* 225	*b* 157	*b* 192	
10	112	45	*b* 11	*b* 11	22	*b* 90	225	94	*a* 315		*b* 180	*b* 102	
11	292	33	*b* 11	*b* 315	30	*a* 67	45	105	*a* 315		*b* 192	*b* 157	
Midn't.	292	360	*b* 337	*b* 337	75	*b* 90	45	75	*a* 315	*a* 225	*b* 213	*b* 135	208
Daily means.	196	202	160	194	149	146	219	177				165	

a One observation. *b* Two observations. *c* Four observations.

0 represents calm; 360° north; 90° east; 180° south; 270° west.

TABLE XV.

Mean force of the wind at every hour of the day, deduced from the term-day observations.

Observation hour.	January.	February.	March.	April.	May.	June.	July.	August.	Septem'r.	October.	Novemb'r.	Decemb'r.	Annual means.
1 A. M.	*b* 1.00	*a* 3.00	*a* 1.00	*a* .50	*a* 1.00	*a* 3.00	*a* 0.00	*a* .50				*a* 1.00	
2	*a* 1.00	*a* 1.00	*a* 1.00	*a* 1.00	*a* 2.00	*a* 2.00	*a* 1.00	*a* 1.00				*a* 1.00	
3	*a* 1.00	*a* 1.00	*a* 1.00	*a* 1.00	*a* 1.00	*a* 1.00	*a* 1.00	*a* 2.00				*a* 1.00	
4	*a* 1.00	*a* 1.00	*a* .50	*a* .50	*a* 1.00	*a* 2.00	*a* 1.00	*a* 2.00				*a* .00	
5	*a* 1.00	*a* 1.00	*a* 1.00	*a* .50	*a* 1.00	*a* 4.00	*a* 1.00	*a* 2.00				*a* .00	
6	.83	*c* .50	.50	*c* .62	*b* .75	*a* .50	*b* .75	*b* .75	*a* .50		*b* 2.00	.16	
7	.83	.83	*b* .50	*b* .50	.50	*b* 2.75	2.00	.67	*a* 1.00	*a* 1.00	*a* 2.00	*a* .50	1.09
8	.83	.67	*b* .75	.50	.67	*b* 3.25	2.00	1.17	*a* .50	*a* 1.00	*a* 2.00	*a* .50	1.15
9	.83	.83	*b* .75	1.33	1.33	*b* 2.75	.83	.67	*a* .50	*a* 2.00	*b* .75	*b* .75	1.11
10	1.17	1.00	*b* .75	1.00	1.00	*b* 2.25	1.83	.83	*a* .50	*a* 2.00	*a* 1.00	*a* 1.00	1.19
11	*b* 2.50	1.33	*b* 1.50	*b* 1.00	.67	*b* 2.25	1.16	.50	*a* 1.00		*a* 3.00	*a* 2.00	
Noon.	2.17	1.67	*b* 1.50	1.83	1.00	*b* .75	.67	.67	*a* 1.00	*a* 1.00	*b* 2.00	*b* 2.00	1.36
1 P. M.	2.67	2.00	*b* 1.50	2 00	1.16	*b* .75	1.33	.83	*a* 2.00	*a* 1.00	*b* 3.00	*b* 2.00	1.69
2	2.33	2.67	*b* 2.50	3.00	1.00	*b* .50	1.33	.83	*a* 1.00	*a* 2.00	*b* 3.00	*b* 3.00	1.85
3	3.00	3.00	*b* 2.25	2.67	.83	*b* 1.00	.83	1.83	*a* 1.00	*a* 2.00	*b* 2.50	*b* 3.00	1.99
4	3.00	3.00	*b* 3.00	2.67	.67	*b* .75	1.17	1.83	*a* 1.00	*a* 2.00	*b* 3.00	*b* 3.00	2.09
5	3.00	3.33	*b* 2.00	*b* .75	.50	*b* 1.00	*b* .75	1.17	*a* 2.00	*a* 3.00	*b* 2.50	*b* 2.50	1.88
6	2.67	2.33	*b* .75	1.50	.33	*b* 1.00	.83	1.00	*a* 1.00	*a* 2.00	*b* 2.50	*b* 2 00	1.48
7	1.67	1.67	*b* 1.75	.83	.50	*b* 1.50	.83	1.00	*a* .50	*a* 1.00	*b* 4.00	*b* 1.50	1.40
8	1.16	1.00	*b* 1.50	1.33	.83	*b* 1.50	.83	.67	*a* 1.00	*a* .50	*b* 3.50	*b* 1.00	1.24
9	.83	.33	*b* 1.25	.83	.83	*b* .50	1.17	.67		*a* .50	*b* 1.50	*b* 1.00	
10	*b* .75	.33	*b* 1.50	1.17	1.33	*b* .75	1.00	1.17	*a* .50		*b* 1.00	*b* 1.00	
11	.83	.67	*b* 1.50	1.17	.83	*a* 1.00	.83	1.33	*a* .50		*b* 1.50	*b* .75	
Midn't.	.83	.33	*b* 1.00	1.17	.83	*b* .75	.50	1.83	*a* .50	*a* .50	*b* .75	*b* 1.00	0.83
Daily means.	1.54	1.44	1.30	1.22	0.99	1.56	1.03	1.12				1.32	

a One observation. *b* Two observations. *c* Four observations.

"Airs" in the journal are reckoned .5.....1 = a pressure of .03 pounds per square foot; 2 = .10; 3 = .50; 4 = 1.00; 5 = 1.97; 6 = 3.07; 7 = 4.43; 8 = 6.03; 9 = 7.87; 10 = 9.96.

TABLE XVI.

Mean portion of the sky obscured at every hour of the day, deduced from the term-day observations.

Observation hour.	January.	February.	March.	April.	May.	June.	July.	August.	Septem'r.	October.	Novem'r.	Decem'r.	Annual means.
1 A. M.	b .00	a .00	a .00	a 1.00	a .00	a 1.00	a .00	a 1.00				a .70	
2	a .00	a .00	a .00	a .90	a .00	a 1.00	a .00	a 1.00				a .70	
3	a .00	a .00	a .00	a .40	a .00	a 1.00	a .00	a 1.00				a .80	
4	a .00	a .00	a .00	a .30	a .00	a 1.00	a .00	a 1.00				a .90	
5	a .00	a .00	a .00	a .30	a .00	a .70	a .00	a 1.00				a .80	
6	b .00	c .00	.47	c .60	b .35	a .40	b .05	b .35	a .00		b .95	a .57	
7	.00	.00	b .60	b .30	.47	b 1.00	.47	.47	a .00	a .20	a .90	a 1.00	.23
8	.00	.00	b .50	.37	.50	b 1.00	.67	.53	a .00	a .20	a 1.00	a .10	.20
9	.00	.00	b .45	.32	.47	b 1.00	.63	.77	a .00	a .40	b .55	b .15	.20
10	b .00	.00	b .50	.57	.40	b 1.00	.67	.90	a .00	a .50	a .60	a .10	.22
11	b .05	.00	b .60	b .40	.40	b 1.00	.67	.87	a .10		a .40	a .30	
Noon.	.07	.00	b .40	.63	.47	b 1.00	.70	.80	a .10	a .00	b .20	b .35	.20
1 P. M.	.10	.00	b .30	.60	.63	b 1.00	.67	.87	a .20	a .00	b .30	b .25	.21
2	.13	.00	b .30	.67	.70	b 1.00	.67	.77	a .40	a .10	b .40	b .20	.22
3	.27	.00	b .30	.70	.70	b 1.00	.67	.70	a .50	a .10	b .40	b .15	.23
4	.27	.00	b .25	.60	.70	b 1.00	.63	.63	a .50	a .10	b .25	b .20	.21
5	b .30	.03	b .35	b .55	.67	b 1.00	b .30	.67	a .40	a .20	b .25	b .20	.21
6	.17	.13	b .35	.63	.67	b 1.00	.37	.63	a .60	a .00	b .25	b .20	.21
7	.13	.27	b .15	.47	.43	b .95	.33	.43	a .30	a .00	b .15	b .20	.16
8	.07	.17	b .00	.40	.43	b .65	.33	.43	a .20	a .00	b .10	b .20	.12
9	.00	.10	b .00	.53	.50	b .55	.33	.47		a .00	b .05	b .25	
10	b .00	.10	b .05	.77	.43	b .45	.30	.37	a .10		b .05	b .45	
11	.00	.10	b .05	.77	.80	a .90	.33	.33	a .10		b .30	b .20	
Midn't.	.00	.00	b .00	.83	.90	b .45	.37	.33	a .10	a .00	b .90	b .25	.17
Daily means	.06	.04	.23	.57	.44	.88	.38	.68				.38	

a One observation. b Two observations. c Three observations.

.00 signifies clear sky. 1.00 signifies entirely clouded over.

MAGNETICAL OBSERVATIONS

AT

SANTIAGO DE CHILE,

DURING THE YEARS 1849, 1850, 1851, AND 1852,

BY THE

U. S. NAVAL ASTRONOMICAL EXPEDITION.

MAGNETICAL OBSERVATIONS.

ABSOLUTE DECLINATION AT SANTIAGO DE CHILE.

Month and day.	Mean time, Santiago. h. m. s.	Number of observations.	Easterly declination. ° ′ ″
1850.			
May 24	1 11 49 P. M.	4	15 56 2
July 24	0 55 48	4	15 5 53
August 21	0 37 13	5	14 59 29
October 23	1 43 19	4	15 49 38
December 2 . . .	1 56 12	6	15 40 11
December 25 . . .	2 44 32	3	15 20 20
1851.			
January 22	2 2 8 P. M.	7	15 15 12
February 21 . . .	11 48 25 A. M.	10	14 59 20
March 19	0 21 48 P. M.	8	15 7 28
April 23	1 7 25	6	15 9 29
June 18	2 59 7	6	15 11 5
September 14 . . .	3 51 37	6	16 16 43
October 1	1 49 8	4	16 42 7
October 22	2 35 8	6	16 37 12
November 28 . . .	2 22 29	6	16 36 32
December 24 . . .	2 49 55	4	16 29 0
1852.			
January 21	3 30 31	4	16 22 50
February 27 . . .	2 51 18	4	15 46 57
April 21	1 46 32	6	16 19 43
May 28	1 12 23	6	16 11 6
June 23	2 1 40	4	16 14 33
September 11 . . .	2 49 34	7	16 20 3
November 10 . . .	3 7 6	9	16 27 29

DIURNAL CHANGES OF THE DECLINATION.

OBSERVATIONS WITH THE UNIFILAR.

APRIL 24 and 25, 1850.

Mean time, Göttingen.	Unifilar scale.	Barometer.	Thermometers.			Mean time, Göttingen.	Unifilar scale.	Barometer.	Thermometers.		
			Att.	Air.	Wet.				Att.	Air.	Wet.
h. m.	Div.	Inches.	°	°	°	h. m.	Div.	Inches.	°	°	°
10 00 P.M.	300.0					6 5 P.M.	302.2				
11 00	300.1	28.163	60.5	58.3		10	302.2				
Midnight.	300.1	.160	60.4	57.8		15	302.0				
1 00 A.M.	298.4	.158	60.0	57.3		20	302.1				
2 00	300.2	.161	59.7	56.7		25	302.1				
3 00	300.0	.172	59.7	56.3		30	302.3				
4 00	299.7	.171	59.4	55.6		35	302.2				
5 00	299.7	.171	58.8	54.8		40	302.4				
6 00	299.7	.166	59.1	54.5		45	302.4				
7 00	299.6	.167	58.8	54.3		50	302.4				
8 00	299.6	.168	59.3	54.0		55	302.5				
9 00	299.7	.187	59.0	54.0		7 00	302.3	28.200	62.7	*69.8	
10 00	299.6	.196	59.3	54.1		5	302.2				
11 00	300.0	.218	60.2	54.1		10	302.0				
Noon.	300.0	.220	60.5	55.4		15	302.0				
1 00 P.M.	299.2	.222	59.5	55.5		20	302.1				
2 00	299.2	.230	59.5	55.2		25	302.1				
3 00	297.8	.238	60.0	56.2		30	302.0				
4 00	299.9	.240	61.0	57.0		8 00	302.2	.194	63.5	*80.2	
5 00	301.0	.224	62.1	61.5		9 00	302.1	28.192	63.5	66.2	
6 00	302.2	28.216	62.0	60.5							

Increasing numbers denote increasing easterly deviation.

Value of 1 scale division . . . . . $= 1'.00896$.

Value of $\frac{H}{F}$ . . . . . $= 0.000155$.

* Thermometer accidentally left in the sun.

MAY 24 and 25, 1850.

Mean time, Göttingen.	Unifilar scale.	Barometer.	Thermometers.			Mean time, Göttingen.	Unifilar scale.	Barometer.	Thermometers.		
			Att.	Air.	Wet.				Att.	Air.	Wet.
h. m.	Div.	Inches.	°	°	°	h. m.	Div.	Inches.	°	°	°
10 00 P.M.	300.0	28.144	60.6	57.6	53.6	Midnight.	299.6	28.153	60.1	55.2	52.5
30	299.8	.147	60.4	56.7	53.4	0 30 A.M.	299.5	.162	60.4	55.9	52.0
11 00	299.7	.143	60.3	57.6	53.6	1 00	299.5	.159	60.5	55.4	52.0
30	299.7	28.150	60.0	56.1	53.1	30	299.4	28.156	60.5	54.3	51.5

MAY 24 and 25, 1850—Continued.

Mean time, Göttingen.	Unifilar scale.	Barometer.	Thermometers.			Mean time, Göttingen.	Unifilar scale.	Barometer.	Thermometers.		
			Att.	Air.	Wet.				Att.	Air.	Wet.
h. m.	Div.	Inches.	°	°	°	h. m.	Div.	Inches.	°	°	°
2 00 A.M.	299.4	28.166	60.7	52.5	50.0	4 30 P.M.					
30	299.5	.176	61.0	52.9	49.7	5 00	299.7	28.162	59.0	61.2	53.1
3 00	299.4	.178	60.8	51.8	49.1	30	301.5	.152	60.1	61.5	52.7
30	299.5	.196	61.2	51.3	48.6	35	301.5				
4 00	299.4	.206	62.2	50.6	48.1	40	301.7				
30	299.4	.212	63.6	49.7	47.2	45	302.0				
5 00	299.5	.220	64.5	49.3	46.8	50	302.0				
30	299.6	.206	64.6	50.9	48.1	55	302.2				
6 00	299.5	.196	64.6	50.9	48.1	6 00	302.5	.135	60.7	63.5	52.2
30	299.2	.197	64.5	49.5	47.4	5	302.7				
7 00	299.4	.193	64.3	47.6	45.7	10	303.0				
30	299.6	.182	64.0	48.6	46.2	15	303.2				
8 00	299.4	.174	63.7	48.6	46.2	20	303.6				
30	299.3	.163	63.0	48.4	45.0	25	303.9				
9 00	299.3	.156	62.6	47.0	44.1	30	304.0	.134	61.0	63.3	54.3
30	299.7	.156	62.7	47.4	45.0	35	304.0				
10 00	299.7	.151	61.7	46.6	44.6	40	304.0				
30	299.9	.151	61.5	45.0	43.9	45	304.2				
11 00	299.8	.150	59.9	44.8	42.8	50	304.4				
30	300.0	.152	59.5	43.9	41.5	55	304.4				
Noon.	299.9	.150	59.5	44.4	43.3	7 00	304.8	.128	61.0	65.1	55.2
30 P.M.	299.9	.156	59.9	43.9	41.7	5	304.9				
1 00	299.5	.158	59.0	44.6	42.8	10	305.0				
30	299.4	.158	58.2	45.8	44.6	15	305.0				
2 00	299.0	.168	57.9	48.0	46.2	30	305.0	.122	61.9	64.9	54.5
30	298.0	.172	58.2	52.1	48.8	8 00	305.3	.116	62.2	65.3	55.2
3 00	297.8	.172	59.7	53.6	50.0	30	305.0	.112	62.5	65.3	55.4
30	298.0	28.176	59.9	56.1	50.9	9 00	304.8	.110	62.7	65.1	54.9
4 00*						30	304.2	28.108	62.8	64.6	54.9

* The suspending fibre was accidentally broken at 3h. 35m., which caused a disturbance in the zero of the scale, and consequently the absolute change between 3h. 30m. and 5h. is not known.

1 scale division . . . . . = 1.00996.

h. m.

Value of $\frac{H}{F}$ for observations until 3 35 P. M. . . . = 0.000158.

after 5 00 . . . = 0.000696.

JUNE 19 and 20, 1850.

Mean time, Göttingen.	Unifilar scale.	Barometer.	Thermometers.			Mean time, Göttingen.	Unifilar scale.	Barometer.	Thermometers.		
			Att.	Air.	Wet.				Att.	Air.	Wet.
h. m.	Div.	Inches.	°	°	°	h. m.	Div.	Inches.	°	°	°
10 00 P. M.	300.0	28.061	60.7	55.3	50.4	3 00 A. M.	300.2	28.063	60.0	48.7	45.5
30	299.8	.061	60.8	55.0	50.2	30	299.7	.063	59.6	48.0	44.9
11 00	299.7	.061	60.9	55.0	50.0	4 00	299.6	.064	59.8	46.5	43.9
30	299.7	.060	61.0	54.5	49.5	30	299.6	.062	60.5	46.5	43.5
Midnight.	299.7	.058	60.7	54.2	48.8	5 00	299.7	.058	59.7	45.7	43.5
30 A.M.	299.8	.058	60.6	53.5	48.6	30	299.6	.057	60.4	46.9	44.1
1 00	300.0	.059	60.3	51.5	47.6	6 00	299.9	.057	61.2	45.0	43.2
30	300.5	.065	60.3	50.8	47.0	30	299.7	.054	62.0	44.5	41.9
2 00	300.5	.063	60.5	50.2	46.6	7 00	299.9	.047	62.0	43.4	41.2
30	300.2	28.063	60.4	49.5	45.9	30	299.9	28.040	61.7	43.3	41.2

JUNE 19 and 20, 1850—Continued.

Mean time, Göttingen.	Unifilar scale.	Barometer.	Thermometers.			Mean time, Göttingen.	Unifilar scale.	Barometer.	Thermometers.		
			Att.	Air.	Wet.				Att.	Air.	Wet.
h. m.	Div.	Inches.	°	°	°	h. m. s.	Div.	Inches.	°	°	°
8 00 A. M.	299.8	28.033	61.5	42.8	40.8	6 10 30 P. M.	301.0				
30	299.7	.032	61.2	42.4	40.8	13	301.0				
9 00	299.8	.028	60.5	42.5	41.0	15 30	301.0				
30	300.0	.018	58.0	41.5	39.5	18	301.0				
10 00	300.2	.012	57.8	41.0	39.1	20 30	301.0				
30	300.2	.010	57.2	40.7	38.9	23	301.2				
11 00	300.3	.010	57.0	40.4	38.7	25 30	301.2				
30	300.1	.010	57.7	40.5	38.6	28	301.3				
Noon.	300.1	.026	58.8	40.7	38.8	30 30	301.5				
30 P. M.	300.0	.026	59.5	41.0	39.3	33	301.4				
1 00	300.0	.018	58.0	41.0	38.8	35 30	301.4				
30	300.5	.024	58.0	44.1	41.9	38	301.5				
2 00	299.7	.030	58.0	48.5	45.4	40 30	301.8				
30	298.5	.032	58.1	51.5	46.8	43	302.0				
3 00	298.2	.032	58.2	53.5	47.2	45 30	302.0				
30	298.9	.030	58.5	57.0	48.6	48	302.0				
43	299.0					50 30	302.0				
48	299.0					53	302.0				
53	299.3					55 30	302.1				
58	299.5					58	302.0				
4 00	299.5	.040	59.4	59.4	52.7	7 00 00	302.2				
3	299.2					2 30	302.2				
8	299.7					5	302.2				
13	299.5					7 30	302.0				
18	299.8					10	302.1				
23	299.7					12 30	302.3				
28	299.9					7 15	302.3				
30	299.9	.044	60.5	57.0	51.5	17 30	302.5				
33	300.0					20	302.5				
38	300.0					22 30	302.3				
43	300.0					25	302.3				
48	300.0					30	302.3	28.074	63.2	57.0	51.8
53	300.0					8 00	302.2	.076	63.5	57.0	51.8
58	300.0					30	302.0	.080	63.5	57.0	51.4
5 00	300.0	.050	60.5	56.7	51.3	9 00	301.4	.080	65.0	57.0	51.4
3	300.0					30	301.0	.080	64.2	56.8	51.2
30	300.2	.050	60.2	56.5	51.3	10 00	301.0	28.078	64.0	56.8	51.2
6 00	300.8	28.054	61.0	56.3	50.9						

Fluctuations in the attached thermometer were principally due to the office door being alternately open and closed.

1 scale division . . . . . = 1.00896

Value of $\frac{H}{F}$ . . . . . = 0.000198

JULY 24 and 25, 1850.

Mean time, Göttingen.	Unifilar scale.	Barometer.	Thermometers.			Mean time, Göttingen.	Unifilar scale.	Barometer.	Thermometers.		
			Att.	Air.	Wet.				Att.	Air.	Wet.
h. m.	Div.	Inches.	°	°	°	h. m.	Div.	Inches.	°	°	°
10 00 P. M.	298.0	28.142	56.5	52.5	43.5	Midnight.	299.0	28.184	58.2	46.2	40.5
30	299.2					30 A. M.	298.2				
11 00	299.0	28.164	56.5	49.1	42.3	1 00	295.1	28.174	61.0	44.0	39.1
30	299.0					30	297.8				

JULY 24 and 25, 1850—Continued.

Mean time, Göttingen.	Unifilar scale.	Barometer.	Thermometers.			Mean time, Göttingen.	Unifilar scale.	Barometer.	Thermometers.		
			Att.	Air.	Wet.				Att.	Air.	Wet.
h. m.	Div.	Inches.	°	°	°	h. m.	Div.	Inches.	°	°	°
2 00 A. M.	298.0	28.160	60 0	42.5	37.8	4 00 P. M.	299.4	28.218	57.7	48.2	42.6
30	298.5					30	299.7				
3 00	298.8	.160	59.0	41.0	36.5	5 00	299.5	.221	58.1	50.7	44.1
30	298.8					30	300.0				
4 00	298.5	.182	63.2	39.5	35.1	6 00	299 8	.221	58.6	50.3	45.5
30	298.2					30	299.4				
5 00	298.2	.186	66.0	38.6	34.8	35	299.4				
30	298.2					40	299.4				
6 00	298.0	.160	64.0	38.6	34.8	45	299.3				
30	298.0					50	299.3				
7 00	298.2	.152	63.0	37.6	34.1	55	299.2				
30	298.0					7 00	299.4	.225	58.7	54.7	45.5
8 00	298.0	.150	63.0	36.5	33.8	5	299.4				
30	298.2					10	299.5				
9 00	298.7	.156	63.5	36.2	33.1	15	299.7				
30	299.9					20	299 7				
10 00	298.7	.161	65.0	35.5	33.0	25	299.8				
30	298.5					30	299.7				
11 00	298.7	.166	64.6	35.7	32.7	35	299.8				
30	298.7					40	299.7				
Noon.	299.3	.172	63.5	35.5	33.0	45	299.7				
30 P. M.	299.4					50	299.7				
1 00	299.6	.179	62.7	37.3	34.7	55	299.7				
30	299.6					8 00	299.6	.228	60.0	55.5	45.7
2 00	299.5	.188	62.0	40.0	37.8	30	299.5				
30	299.4					9 00	299.0	28.247	61.4	55.0	45.7
3 00	299.4	28.202	59.7	44.2	41.7	30	298.8				
30	299.3										

At 2h. 0m. and 3h. 0m. the needle was found to be vibrating excessively without apparent cause.

1 scale division . . . . . = 1.00896

Value of $\frac{H}{F}$ . . . . . = 0.000198

AUGUST 29 and 30, 1850.

Mean time, Göttingen.	Unifilar scale.	Barometer.	Thermometers.			Mean time, Göttingen.	Unifilar scale.	Barometer.	Thermometers.		
			Att.	Air.	Wet.				Att.	Air.	Wet.
h. m.	Div.	Inches.	°	°	°	h. m.	Div.	Inches.	°	°	°
10 00 P. M.	299.3	28.182	62.0	60.0	53.6	5 00 A. M.	297.3	28.235	64.5	51.2	48.1
30	298.7					30	297.6				
11 00	298.5	.188	61.5	58.1	51.5	6 00	297.8	.230	64.5	51.0	47.6
30	298.5					30	297.9				
Midnight.	298.3	.196	61.5	56.5	51.3	7 00	298.0	.218	65.0	50.5	47.4
30 A. M.	298.3					30	298.1				
1 00	298.2	.220	62.7	55.5	51.1	8 00	298.2	.213	65.3	50.4	47.4
30	297.7					30	298.3				
2 00	298.1	.230	63.5	55.0	50.9	9 00	298.5	.204	65.5	50.2	47.6
30	297.7					30	298.7				
3 00	297.6	.238	63.5	54.3	50.4	10 00	298.8	.202	65.0	50.4	48.1
30	297.3					30	299.0				
4 00	297.4	28.235	64.2	53.0	49.3	11 00	299.0	28.202	65.0	50.5	48.1
30	297.6					30	299.2				

AUGUST 29 and 30, 1850—Continued.

Mean time, Göttingen.	Unifilar scale.	Barometer.	Thermometers.			Mean time, Göttingen.	Unifilar scale.	Barometer.	Thermometers.		
			Att.	Air.	Wet.				Att.	Air.	Wet.
h. m.	Div.	Inches.	°	°	°	h. m.	Div.	Inches.	°	°	°
Noon.	299.0	28.210	63.5	50.0	47.6	6 38 P. M.	299.6				
30 P. M.	298.5					43	299.8				
1 00	298.0	.210	62.7	52.0	49.1	48	300.0				
30	297.0					53	300.0				
2 00	296.2	.216	62.0	53.8	50.4	58	300.0				
30	295.6					7 00	300.0	28.184	62.7	62.2	54.8
3 00	295 0	.214	61.2	57.4	53.1	3	300.0				
30	295.0					8	300.0				
4 00	295.5	.210	61.0	58.0	53.5	13	299.8				
30	295.2					18	299.8				
5 00	296.5	.206	61.5	58.7	53.6	23	299.8				
30	298.0					28	300.1				
6 00	299.0	28.200	61.0	60.1	53.8	30	300.2				
13	299.2					8 00	300.7	.184	63.1	62.2	53.4
18	299.2					30	300.0				
23	299.5					9 00	299.5	.184	63.5	62.5	53.6
28	299.5					30	299.5				
30	299.6					10 00	299.9	28.196	63.0	60.5	52.7
33	299.6										

1 scale division . . . . . = 1'.00896

Value of $\frac{H}{F}$ . . . . . = 0.000198

OCTOBER 23 and 24, 1850.

Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.
h. m.	Div.	h. m.	Div.	h. m.	Div.	h. m.	Div.	h. m.	Div.	h. m.	Div.
10 30 P. M.	297.8	1 00 A. M.	298.3	6 00 A. M.	297.6	2 00 P. M.	294.3	4 30 P. M.	298.3	7 00 P. M.	302.2
11 00	297.0	30	298.3	Noon.	295.7	30	294.5	5 00	300.2	30	300.8
30	297.3	2 00	298.0	30 P. M.	293.6	3 00	295.4	30	301.5	8 00	299.9
Midnight.	298.5	30	298.0	1 00	293.5	30	296.4	6 00	302.4	30	298.9
30 A. M.	298.4	3 00	298.1	30	293.9	4 00	297.3	30	302.4	9.00	298.5

1 scale division . . . . . = 1'.00896

Value of $\frac{H}{F}$ . . . . . = 0.000145

NOVEMBER 29 and 30, 1850.

Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.
h. m.	Div.	h. m.	Div.	h. m.	Div.	h. m.	Div.	h. m.	Div.	h. m.	Div.
1 30 A. M.	297.7	5 10 A. M.	297.0	0 15 P. M.	294.2	0 50 P. M.	294.7	6 35 P. M.	300.7	7 10 P. M.	299.6
40	297.6	11 45	294.2	20	294.1	1 10	294.7	40	300.5	15	299.6
50	297.7	50	294.5	25	294.3	2 10	296.0	45	300.3	20	299.6
2 00	297.7	55	294.6	30	294.5	3 10	298.2	50	300.0	25	299.6
10	297.8	Noon.	294.5	35	294.7	4 10	300.4	55	299.7	30	299.7
20	297.9	0 5 P. M.	294.4	40	294.8	5 10	300.9	7 00	299.7	35	299.8
30	298.0	10	294.4	45	294.8	6 10	300.8	5	299.7	40	299.9

1 scale division . . . . . = 1'.00896

Value of $\frac{H}{F}$ . . . . . = 0.000131

DECEMBER 25 and 26, 1850.

Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.
h. m.	Div.	h. m.	Div.	h. m.	Div.	h. m.	Div.	h. m.	Div.	h. m.	Div.
10 00 P. M.	300.1	11 00 A. M.	296.2	11 35 A. M.	296.3	0 10 P. M.	295.4	5 00 P. M.	298.8	7 25 P. M.	303.0
11 00	299 4	5	296.2	40	295.8	15	295.5	6 00	300.6	30	303.0
Midnight.	299.2	10	296.1	45	295.1	20	295.5	7 00	302.4	35	302.8
1 00 A.M.	299.1	15	296 1	50	294.7	1 00	296.0	5	303.4	40	302.7
2 00	298.8	20	296.2	55	294 5	2 00	298.4	10	303.3	45	302.6
3 00	298.5	25	296.1	Noon.	294.4	3 00	299.4	15	303.3	50	302.5
4 00	298.3	30	296.2	0 5 P. M.	295.1	4 00	298.7	20	303.0	9.00	301.7

1 scale division . . . . . = 1.00896

Value of $\frac{H}{F}$ . . . . . = 0.000168

JANUARY 22 and 23, 1851.

Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.
h. m.	Div.	h. m.	Div.	h. m.	Div.	h. m.	Div.	h. m.	Div.	h. m.	Div.
10 00 P. M.	300.0	5 00 A. M.	298.7	0 35 P. M.	294.5	1 10 P. M.	294.2	1 45 P. M.	294.7	3 00 P. M.	296.7
11 00	299.9	6 00	298.8	40	294.4	15	294.1	50	295.0	4 00	299.1
Midnight.	299.4	Noon.	295.3	45	294.3	20	293.9	55	295.1	5 00	301.4
1 00 A. M.	299.0	0 15 P. M.	294.9	50	294.3	25	294.1	2 00	295.2	6 00	302.3
2 00	298.5	20	294.8	55	294.3	30	294.2	5	295.4	7 00	302.4
3 00	299.2	25	294.5	1 00	294.3	35	294.3	10	295.4	8 00	299.8
4 00	298.7	30	294.4	5	294.2	40	294.6	15	295.5	9 00	298.2

1 scale division . . . . . = 1.00896

Value of $\frac{H}{F}$ . . . . . = 0.000168

FEBRUARY 21 and 22, 1851.

Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.
h. m.	Div.	h. m.	Div.	h. m.	Div.	h. m.	Div.	h. m.	Div.	h. m.	Div.
10 00 P. M.	299.7	0 58 P. M.	297.8	1 50 P. M.	296.8	2 50 P. M.	296.6	4 00 P. M.	299.6	9 00 P. M.	306.6
11 00	296.9	1 00	297.7	55	296.8	55	296.7	5 00	303.0	5	306.5
Midnight.	294.6	5	297.7	2 00	296.8	3 00	296.7	6 00	305.6	10	306.3
1 00 A. M.	294.3	10	297.7	5	296.6	5	296.7	7 00	306.5	15	306.3
2 00	293.8	15	297.6	10	296.5	10	296.8	8 00	306.7	20	306.2
3 00	*300.0	20	297.6	15	296.3	15	296.8	30	306.7	25	306.1
4 00	299.9	25	297.5	20	296.4	20	296.9	35	306.7	30	305.8
5 00	299.6	30	297.4	25	296.4	25	297.0	40	306.6	10 00	305.4
Noon.	299.7	35	297.2	35	296.5	30	297.3	45	306.6		
0 5 P. M.	299.7	40	297.1	40	296.6	35	297.3	50	306.6		
15	299.5	45	296.9	45	296.5	40	297.8	55	306.6		

* Just before this observation the instrument was disturbed accidentally, and the observations that follow have a different zero.

1 scale division . . . . . = 1.00896

Value of $\frac{H}{F}$ . . . . . = 0.000146

MARCH 19 and 20, 1851.

Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.
h. m.	Div.	h. m.	Div.	h. m.	Div.	h. m.	Div.	h. m.	Div.	h. m.	Div.
10 00 P. M.	299.7	3 00 A. M.	298.1	3 00 P. M.	292.7	8 00 P. M.	303.7	8 35 P. M.	302.5	9 00 P. M.	301.6
11 00	298.6	4 00	297.8	4 00	295.8	10	303.7	40	302.3	10 00	300.2
Midnight.	298.6	5 00	297.3	5 12	299.8	20	303.4	45	302.0		
1 00 A. M.	298.3	6 00	297.3	6 00	301.5	25	302.7	50	301.8		
2 00	298.5	2 00	292.5	7 00	303.7	30	302.6	55	301.7		

1 scale division . . . . . = 1.00896

Value of $\frac{H}{F}$ . . . . . = 0.000194

APRIL 23 and 24, 1851.

Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.
h. m.	Div.	h. m.	Div.	h. m.	Div.	h. m.	Div.	h. m.	Div.	h. m.	Div.
11 00 P. M.	300.0	0 10 P. M.	298.4	0 55 P. M.	297.6	1 40 P. M.	297.0	2 35 P. M.	296.5	3 25 P. M.	296.2
Midnight.	299.9	15	298.3	1 00	297.5	45	296.8	40	296.4	30	296.2
1 00 A. M.	299.3	20	298.4	5	297.5	50	296.7	50	295.8	35	296.3
2 00	299.5	25	298.3	10	297.4	55	296.8	55	295.7	4 00	296.6
3 00	299.5	30	298.2	15	297.4	2 00	296.7	3 00	295.8	5 00	299.2
4 00	299.2	35	298.0	20	297.3	5	296.8	5	296.0	6 00	301.5
6 00	298.2	40	297.9	25	297.3	10	296.6	10	296.2	7 00	301.7
Noon.	298.6	45	297.7	30	297.2	15	296.6	15	296.1	8 00	300.7
0 5 P. M.	298.4	50	297.5	35	297.2	20	296.6	20	296.1	9 00	299.7

1 scale division . . . . . = 1.00896

Value of $\frac{H}{F}$ . . . . . = 0.000115

MAY 30 and 31, 1851.

Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.
h. m.	Div.	h. m.	Div.	h. m.	Div.	h. m.	Div.	h. m.	Div.	h. m.	Div.
11 00 P. M.	300.0	5 00 A. M.	300.7	2 30 P. M.	299.3	3 15 P. M.	298.8	3 55 P. M.	299.0	9 00 P. M.	300.6
Midnight.	299.7	6 00	300.6	35	299 2	20	298.7	4 00	299.2	10 00	299.8
1 00 A. M.	300.7	1 00 P. M.	300.6	50	299.0	25	298.7	5 00			
2 00	300.7	2 00	299.7	3 00	299.0	30	298.7	6 00	301.8		
3 00	300.7	5	299.7	5	298.9	35	298.6	7 00	301.8		
4 00	300.7	20	299.4	10	298.9	50	299.0	8 00	301.7		

1 scale division . . . . . = 1.00896

Value of $\frac{H}{F}$ . . . . . = 0.000124

JUNE 18 and 19, 1851.

Minutes of Göttingen mean time.	10 P. M.	11 hrs.	Midnight.	1 A. M.	2 hrs.	3 hrs.	4 hrs.	5 hrs.	6 hrs.	7 hrs.	8 hrs.	9 hrs.
	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.
0	. .	. .	300.3	300.2	300.4	300.2	300.0	300.4	300.7	300.6	300.9	301.0
5	. .	. .	300.1	300.0	300.4	300.1	300.0	300.4	300.7	300 7	301.0	301.0
10	. .	. .	300.1	300.0	300.4	300.0	300.0	300.4	300.7	300.7	301.0	301.0
15	. .	. .	300.0	300.0	300.4	300.0	300.0	300.5	300.6	300.7	301.0	301.0
20	. .	. .	300.0	300.2	300.4	300.0	299.9	300.5	300.5	300.7	301.0	301.1
25	. .	. .	300.0	300.2	300.4	300.0	299.9	300.5	300.5	300.7	301.0	301.1
30	. .	. .	300.1	300.2	300.4	300.0	300.0	300.5	300.5	300.8	301.0	301.1
35	. .	. .	300.1	300.2	300.4	300.0	300.0	300.5	300.5	300.8	301.0	301.1
40	. .	. .	300.2	300.2	300.4	300.0	300.1	300.5	300.5	300.9	301.0	301.1
45	. .	. .	300.2	300.3	300.4	300.1	300.2	300.5	300.5	300.9	301.0	301.1
50	. .	. .	300.2	300.4	300.4	300.1	300.3	300.6	300.6	300.9	301.0	301.1
55	. .	. .	300.2	300.4	300.3	300.1	300.4	300.6	300.6	300.9	301.0	301.1

Minutes of Göttingen mean time.	10 A. M.	11 hrs.	Noon.	1 P. M.	2 hrs.	3 hrs.	4 hrs.	5 hrs.	6 hrs.	7 hrs.	8 hrs.	9 hrs.
	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.
0	301.1	301.1	301.1	301.6	301.0	299.9	299.7	300.3	301.7	303.7	304.8	303.5
5	301.1	301.1	301.1	301.6	301.0	299.8	299.5	300.4	301.9	303.8	304.7	303.3
10	301.1	301.2	301.1	301.6	300.9	299.7	299.3	300.4	301.9	303.8	304.6	303.0
15	301.1	301.3	301.2	301.5	300.8	299.7	299.3	300.5	301.8	304.1	304.5	303.0
20	301.1	301.3	301.2	301.5	300.8	299.6	299.4	300.7	302.2	304.4	304.4	302.9
25	301.1	301.4	301.2	301.5	300.7	299.5	299.5	300.7	302.3	304.4	304.2	302.8
30	301.1	301.3	301.3	301.5	300.5	299.6	299.5	300.7	302.5	304.6	304.2	302.5
35	301.1	301.2	301.3	301.5	300.4	299.6	299.7	300.9	302.9	304.7	304.1	302.5
40	301.0	301.2	301.4	301.4	300.3	299.7	299.9	301.2	302.9	304.7	304.0	302.4
45	301.0	301.1	301.4	301.4	300.1	299.7	300.0	301.3	303.0	304.8	304.0	302.3
50	301.0	301.1	301.5	301.3	300.0	299.7	300.2	301.3	303.3	304.8	303.8	302.2
55	301.0	301.1	301.6	301.1	300.0	299.7	300.3	301.5	303.4	304.8	303.6	302.0

1 scale division . . . . . = 1.00896

Value of $\frac{H}{F}$ . . . . . = 0.000124

AUGUST 29 and 30, 1851.

Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.
h. m.	Div.	h. m.	Div.	h. m.	Div.	h. m.	Div.	h. m.	Div.	h. m.	Div.
10 00 P. M.	300.0	3 00 A. M.	298.3	1 00 P. M.	298.2	2 25 P. M.	297.8	3 00 P. M.	298.2	7 00 P. M.	302.4
11 00	299.0	4 00	298.5	40	297.6	30	297.8	4 00	. .	8 00	302.5
Midnight.	299.7	11 00	300.2	2 00	297.5	35	298.0	5 00	302.5	9 00	300.7
2 00 A. M.	298.4	Noon.	299.7	20	297.8	40	298.2	6 00	302.7	10 00	299.8

1 scale division . . . . . = 1.00896

Value of $\frac{H}{F}$ . . . . . = 0.000269

SEPTEMBER 24 and 25, 1851.

Minutes of Göttingen mean time.	10 P. M.	11 hrs.	Midnight.	1 A. M.	2 hrs.	3 hrs.	4 hrs.	5 hrs.	6 hrs.	7 hrs.	8 hrs.	9 hrs.
	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.
0	300.0	298.8	298.2	298.4	298.4	298.7	298 6	298 6	298.4	298.2	298.1	298.0
5	300.0	298.2	298 5	298.4	298.4	298.7	298.5	298.6	298.3	298.2	298.1	298.0
10	300.0	298.1	298.5	298.4	298.5	298.7	298.6	298.5	298.3	298.2	298.1	298.0
15	299.9	298.1	298.2	298.3	298.5	298.7	298.6	298.5	298 3	298.2	298.0	298.0
20	299.9	298.3	298.2	298.2	298.5	298.7	298.6	298.5	298.2	298.3	298.0	299.2
25	299.8	298.0	298.2	298.2	298.5	298.2	298.6	298.5	298.2	298.3	298.0	299.2
30	299.5	298.0	298.2	298.2	298.5	298.7	298.6	298.5	298.2	298.3	298.0	299.4
35	299.3	297.9	298 4	298.3	298.7	298.7	298.6	298.5	298.2	298.2	298.0	299.4
40	299.3	298.0	298.5	298.4	298.7	298.7	298.6	298.5	298.2	298.2	298.0	299.5
45	299.2	298.0	298.5	298.4	298.7	298.7	298.6	298.5	298.2	298.1	298.0	299.5
50	299.0	298.0	298.5	298.5	298.7	298 7	298.6	298.5	298.2	298.1	298 0	299.5
55	298.9	298.1	298.5	298.4	298.7	298.6	298.6	298.4	298 2	298.1	298.0	299.5

Minutes of Göttingen mean time.	10 A. M.	11 hrs.	Noon.	1 P. M.	2 hrs.	3 hrs.	4 hrs.	5 hrs.	6 hrs.	7 hrs.	8 hrs.	9 hrs.
	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.
0	299.5	299.0	297.7	294.4	292.8	292.3	294.5	298.0	301.0	302.1	302.7	301.5
5	299.4	299.0	297.5	294.3	292.7	292.3	295.0	298.2	301.1	302.2	302.7	301.3
10	299.4	299.0	297.4	294.1	292.7	292.4	295.3	298.6	301.2	302.3	302.6	301.2
15	299.4	299.0	297.1	294.0	292 7	292.5	295.6	298.9	301.4	302.5	302.6	301.1
20	299.4	298.9	297.0	293.7	292.7	292.7	295.7	299.1	301.5	302.5	302.4	301.0
25	299.4	298.8	297.0	293.5	. .	292.8	295.9	299.4	301.8	302.5	302.3	301.0
30	299.4	298.5	296.9	293.3	292.5	293.0	296.3	299.7	301.9	302.6	302.2	300.9
35	299.4	298.4	296.6	293.2	292.5	293.3	296.6	300.0	302.0	302.6	302.1	300.9
40	299.3	298.3	296.4	293.2	292.4	293.4	296.8	300.1	302.0	302.6	302.0	300.7
45	299.2	298.2	. .	293.2	292.3	293.6	297.0	300.4	302.1	302.7	302.0	300.5
50	299.1	298.1	294.9	293.0	292.3	294.0	297.2	300.7	302.1	302.8	301.9	300.4
55	299.0	297.8	294.6	292.8	292.3	294.3	297.7	300.9	302.1	302.7	301.7	300.2

1 scale division . . . . . = 1.00896

Value of $\frac{H}{F}$ . . . . . = 0.000269

OCTOBER 22 and 23, 1851.

Minutes of Göttingen mean time.	10 P. M.	11 hrs.	Midnight.	1 A. M.	2 hrs.	3 hrs.	4 hrs.	5 hrs.	6 hrs.	7 hrs.	8 hrs.	9 hrs.
	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.
0	300.0	298.8	298.9	298.6	298.3	298.2	297.8	297.6	297.5	296.9	296.5	297.0
5	. .	. .	298.3	298.5	298.3	298.2	297.8	297.6	297.4	297.0	296.6	297.0
10	. .	. .	298.3	298.5	298.5	298.2	297.7	297.5	297.3	297.0	296.7	297.0
15	. .	. .	298.4	298.5	298.4	298.1	297.7	297.6	297.2	297.0	296.8	297.0
20	. .	. .	298.5	298.5	298.4	298.1	297.7	297.7	297.1	297.0	296.9	297.1
25	. .	. .	298.4	298.5	298.4	298.0	297.7	297.6	297.0	296.9	296.9	297.3
30	299.2	298.5	298.3	298.6	298.4	298.0	297.7	297.7	297.0	296.9	296.9	297.4
35	. .	. .	298.3	298.6	298.4	297.9	297.6	297.8	297.0	296.9	296.9	297.3
40	. .	298.8	298.3	298.6	298.3	297.9	297.7	297.9	297.0	296.9	297.0	297.0
45	. .	298.7	298.3	298.6	298.3	297.9	297.7	297.8	297.0	296.8	297.0	297.2
50	. .	. .	298.4	298.5	298.2	297.8	297.6	297.7	297.0	296.7	297.0	297.0
55	. .	298.9	298.5	298 6	298.2	297.8	297.6	297.6	296.9	296.6	297.0	297.0

OCTOBER 22 and 23, 1851—Continued.

Minutes of Göttingen mean time.	10 A. M.	11 hrs.	Noon.	1 P. M.	2 hrs.	3 hrs.	4 hrs.	5 hrs.	6 hrs.	7 hrs.	8 hrs.	9 hrs.
	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.
0	297.3	297.2	295.0	295.0	292.7	295.7	297.8	300.3	302.4	303.8	303.2	302.5
5	297.0	297.0	295.0	295.0	292.7	295.3	297.8	300.5	302.8	303.8	303.1	302.3
10	297.0	297.0	295.8	294.6	292.5	296.8	297.2	300.8	302.9	303.8	303.0	302.3
15	297.0	297.0	295.5	294.3	292.7	296.6	297.3	300.8	303.0	303.7	302.9	302.2
20	297.4	296.9	295.3	294.0	293.4	296.5	297.5	300.9	303.3	303.7	302.8	302.1
25	297.0	296.9	295.2	294.5	293.8	296.7	297.9	301.1	303.4	303.8	302.7	301.8
30	297.3	296.2	295.1	293.6	293.7	296.7	299.2	301.3	303.5	303.7	302.6	301.7
35	297.3	296.2	295.0	293.3	293.0	296.7	299.2	301.4	303.8	303.6	302.5	301.6
40	297.0	296.0	294.7	292.8	293.0	296.7	299.3	301.6	303.8	303.6	302.6	301.4
45	297.5	296.0	294.6	292.9	. .	296.9	299.5	301.8	303.9	303.5	302.7	301.2
50	297.0	295.8	294.7	292.8	294.0	297.2	299.6	302.0	303.9	303.4	302.7	301.0
55	297.0	295.4	295.0	292.7	295.0	297.5	300.0	302.2	303.9	303.3	302.6	301.0

At midnight the magnet was disturbed by the closing of a door; and at 1h. 25m. P. M., by the passing of an iron bar.

1 scale division . . . . . $= 1'.00896$

Value of $\frac{H}{F}$ . . . . . $= 0.000119$

NOVEMBER 28 and 29, 1851.

Minutes of Göttingen mean time.	10 P. M.	11 hrs.	Midnight.	1 A. M.	2 hrs.	3 hrs.	4 hrs.	5 hrs.	6 hrs.	7 hrs.	8 hrs.	9 hrs.
	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.
0	299.9	299.8	299.9	299.7	299.7	299.4	299.1	298.9	298.8	298.3	298.2	297.7
5	. .	299.8	299.9	299.7	299.7	299.4	299.0	298.9	298.7	298.3	298.1	297.6
10	. .	299.8	299.9	299.7	299.6	299.3	299.0	298.9	298.6	298.2	298.1	297.5
15	. .	299.8	299.9	299.7	299.6	299.3	299.0	298.9	298.5	298.1	298.0	297.3
20	. .	. .	299.9	299.7	299.6	299.1	299.0	298.9	298.5	298.1	298.0	297.2
25	. .	. .	299.7	299.7	299.5	299.1	299.0	298.9	298.4	298.2	298.0	297.0
30	. .	. .	299.9	299.7	299.5	299.2	299.0	298.9	298.4	298.2	298.0	296.9
35	. .	300.0	299.8	299.7	. .	299.2	299.0	298.9	298.5	298.3	297.9	296.7
40	299.9	300.0	299.8	299.7	. .	299.1	299.0	298.9	298.5	298.3	*297.9	296.6
45	299.9	300.0	299.8	299.7	. .	299.1	299.0	298.8	298.5	298.3	297.9	296.5
50	299.8	300.0	299.8	299.7	. .	299.1	299.0	298.8	298.5	298.2	297.8	296.5
55	299.8	299.9	299.8	299.7	. .	299.1	298.9	298.8	298.4	298.2	297.7	296.3

Minutes of Göttingen mean time.	10 A. M.	11 hrs.	Noon.	1 P. M.	2 hrs.	3 hrs.	4 hrs.	5 hrs.	6 hrs.	7 hrs.	8 hrs.	9 hrs.
	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.
0	296.0	295.3	295.3	294.9	295.9	297.9	298.4	293.8	293.3	294.5	294.7	
5	295.9	295.3	295.3	294.9	296.2	297.9	298.4	293.8	293.5	294.6	294.6	
10	295.7	295.3	295.4	295.0	296.5	297.9	298.5	293.8	293.6	294.6	294.5	
15	295.6	295.3	295.4	295.0	296.7	297.9	298.6	293.8	293.7	294.6	294.5	
20	295.5	295.3	295.4	295.0	296.8	297.9	*293.8	293.8	293.9	294.7	294.5	
25	295.5	295.4	295.4	295.1	296.9	298.0	293.8	293.6	294.0	294.7	294.5	
30	295.5	295.3	295.3	295.3	296.9	298.0	293.9	293 6	294.1	294.7	294.5	
35	295.5	295.2	295.3	295.3	297.0	298.2	294.0	293.4	294.2	294.7	294.5	
40	295.5	295.1	295.1	295.3	297.2	298.2	293.9	293.3	294.3	294.6	294.5	
45	295.5	295.2	295.0	295.4	297.3	298.3	293.9	293.2	294.5	294.6	294.6	
50	295.3	295.3	295.0	295.5	297.4	298.3	293.8	293.2	294.3	294.5	294.6	
55	295.2	295.3	294.9	295.8	297.7	298.4	293.8	293.1	294.5	294.6	294.6	

* The instrument was evidently disturbed by the volunteer assistant, but no note was made of it.

1 scale division . . . . . $= 1'.00896$

Value of $\frac{H}{F}$ . . . . . $= 0.000422$

DECEMBER 24 and 25, 1851.

Mean time. Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time. Göttingen.	Unifilar scale.
h. m.	Div.	h. m.	Div.	h. m.	Div.	h. m.	Div.	h. m.	Div.	h. m.	Div.
9 00 P. M.	300.0	0 30 A. M.	299.0	5 00 A. M.	296.9	2 00 P. M.	294.7	5 00 P. M.	299.6	7 00 P. M.	302.4
10 00	299.1	1 00	298.2	6 00	296.6	30	295.0	30	300.2	8 00	303.2
11 00	298.7	30	297.5	Noon.	295.0	3 00	295.6	6 00	300.7	30	302.5
30	298.8	2 00	297.8	0 30 P. M.	294.0	4 00	297.6	30	301.6	9 00	301.6
Midnight.	299.0	30	297.7	1 00	293.6	30	298.7	7 00	301.8	30	301.3

1 scale division . . . . . = 1.00896

Value of $\frac{F}{H}$ . . . . . = 0.000158

JANUARY 21 and 22, 1852.

Minutes of Göttingen mean time.	10 P. M.	11 hours.	Midnight.	1 A. M.	2 hrs.	3 hrs.	4 hrs.	5 hrs.	6 hrs.	7 hrs.	8 hrs.	9 hrs.
	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.
0	300.0	299.6	300.2	301.1	300.7	300.7	300.2	299.5	298 6			
5												
10												
15												
20												
25												
30	299.6	. .	301.1	300.7	300.7	300.5	299.7	298.9				
35												
40												
45												
50												
55												

Minutes of Göttingen mean time.	10 hrs.	11 hrs.	Noon.	1 P. M.	2 P. M.	3 hrs.	4 hrs.	5 hrs.	6 hrs.	7 hrs.	8 hrs.	9 hrs.
	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scalè div.	Scale div.	Scale div.	Scale div.
0	. .	. .	. .	. .	. .	294.7	300.9	303.2	302.5	303.6	304.2	301.6
5	. .	. .	. .	. .	. .	295.2	300.8	303.7	302.5	303.3	304.3	301.5
10	. .	. .	. .	. .	. .	295.3	300.8	303.9	302.0	303.5	304.2	301.3
15	. .	. .	. .	. .	. .	296.2	301.2	303.9	301.9	303.8	304.1	301.2
20	. .	. .	. .	. .	. .	296.7	301.9	303.3	302.2	303.9	304.1	301.0
25	. .	. .	. .	. .	. .	297.5	302.2	302.8	302.8	304.0	304.1	300.8
30	. .	. .	. .	293.1	293.7	298.2	302.4	302.5	302.4	304.0	304.1	300.7
35	. .	. .	. .	. .	. .	298.3	302.4	302.3	303.0	304.1	303.5	300.6
40	. .	. .	. .	. .	. .	299.5	302.4	302.3	303.2	304.1	303.2	300.4
45	. .	. .	. .	. .	. .	300.0	302.5	302.3	303.4	304.2	302.7	300.3
50	. .	. .	. .	. .	. .	300.5	302.9	302.3	303.7	304.2	302.4	300.0
55	. .	. .	. .	. .	. .	300.2	303.2	302.5	303.9	304.3	301.8	300.0

1 scale division . . . . . = 1.00896

Value of $\frac{H}{F}$ . . . . . = 0.000158

FEBRUARY 27 and 28, 1852.

Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.
h. m.	Div.	h. m.	Div.	h. m.	Div.	h. m.	Div.	h. m.	Div.	h. m.	Div.
10 00 P. M.	300.0	0 20 A. M.	301.4	1 00 A. M.	300.6	0 30 P. M.	297.7	4 30 P. M.	297.7	8 30 P. M.	299.0
30	300.0	25	301.3	2 00	299.7	1 00	297.3	5 00	298.3	9 00	298.7
11 00	299.4	30	301.2	30	298.7	30	296.3	30	298.8	30	298.3
30	301.3	35	301.0	3 00	299.6	2 00	296.0	6 00	299 4	10 00	298.3
Midnight.	302.0	40	300.7	4 30	297.7	30	295.8	30	299.4		
0 5 A. M.	301.7	45	300.5	5 00	297.4	3 00	296.6	7 00	299.3		
10	301.5	50	300.5	30	297.5	30	297.5	30	299.1		
15	301.5	55	300.5	6 00	299.4	4 00	297.7	8 00	299.3		

1 scale division . . . . . = 1.00896

Value of $\frac{H}{F}$ . . . . . = 0.000158

MARCH 24 and 25, 1852.

Minutes of Göttingen mean time.	10 P. M.	11 hrs.	Midnight.	1 A. M.	2 hrs.	3 hrs.	4 hrs.	5 hrs.	6 hrs.	7 hrs.	8 hrs.	9 hrs.
	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.
0	300.0	. .	300.2	300.2	300.2	300.4	300.3	300.2				
5	. .	. .	300.2	300.2	300.2	300.4	. .	300.2				
10	. .	. .	300.2	300.1	300.2	300.3	. .	. .				
15	300.0	. .	300.2	300.1	300.2	300.3	. .	300.1				
20	. .	300.0	300.2	300.1	300.2	300.3	. .	300.2				
25	. .	299.9	300.2	300.1	300.2	300.4	. .	300.2				
30	. .	299.9	300.2	300.1	300.3	300.3						
35	. .	300.0	300.2	300.1	300.3							
40	. .	300.1	300.2	300.1	300.3							
45	. .	300.1	300.2	300.1	300.3							
50	. .	300.1	300.2	300.1	300.3							
55	. .	300.1	300.2	300.2	300.3							

Minutes of Göttingen mean time.	10 A. M.	11 hrs.	Noon.	1 P. M.	2 hrs.	3 hrs.	4 hrs.	5 hrs.	6 hrs.	7 hrs.	8 hrs.	9 hrs.
	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.
0	. .	. .	300.8	299.3	297.3	296.3	. .	299.4	302.4	304.4	305.2	304.7
5	. .	. .	. .	299.1	297.2	. .	. .	. .	. .	304.5	305.2	304.6
10	. .	. .	. .	298.9	. .	. .	. .	. .	. .	304.6	305.2	304.6
15	. .	. .	. .	298.7	296.8	. .	. .	. .	. .	304.8	305.2	304.6
20	. .	. .	300.5	298.6	296.7	. .	. .	. .	. .	304.9	305.2	304.5
25	. .	. .	300.4	298.4	. .	. .	. .	. .	. .	304.9	305.1	304.5
30	. .	. .	300.3	298.3	296.6	296.5	296.3	. .	303.4	304.9	. .	304.5
35	. .	. .	300.2	298.2	296.5	. .	. .	. .	303.7	305.0	305.0	304.4
40	. .	. .	300.0	298.0	. .	. .	. .	. .	303.8	305.0	304.9	304.3
45	. .	. .	299.8	297.7	. .	. .	. .	. .	304.0	305.0	304.9	304.3
50	. .	. .	299.6	297.6	. .	. .	. .	. .	304.2	305.1	304.9	304.2
55	. .	. .	299.5	. .	. .	. .	. .	. .	304.3	305.1	304.8	304.2

1 scale division . . . . . = 1.00896

Value of $\frac{H}{F}$ . . . . . = 0.000158

APRIL 21 and 22, 1852.

Minutes of Göttingen mean time.	10 P. M.	11 hrs.	Midnight.	1 A. M.	2 hrs.	3 hrs.	4 hrs.	5 hrs.	6 hrs.	7 hrs.	8 hrs.	9 hrs.
	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.
0	300.0	298.0	298.8	298.7	299.2	298.8	. .	298.9				
5	. .	. .	298.9	297.0	299.0	298.7	298.0	. .				
10	. .	. .	298.9	297.5	298.9	298.7	297.8	299.2				
15	. .	. .	298.4	298.0	298.7	298.8	. .					
20	. .	. .	. .	298.3	298.8	298.8	298.2					
25	. .	. .	. .	. .	298.8	. .	298.6					
30	300.4	. .	. .	. .	298.8	. .	. .					
35	. .	. .	. .	299.4	. .	298.8	298.7					
40	. .	298.3	298.5	299.4	299.0	298.8	298.7					
45	. .	298.4	298 7	299.5	299.0	. .	298.6					
50	. .	298.5	298.0	299.7	298.9	298.5	. .					
55	. .	298.7	298.0	299.6	298.9	. .	298.1					

Minutes of Göttingen mean time.	10 A. M.	11 hrs.	Noon.	1 P. M.	2 hrs.	3 hrs.	4 hrs.	5 hrs.	6 hrs.	7 hrs.	8 hrs.	9 hrs.
	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.
0	. .	. .	. .	298.5	297.3	297.0	. .	299.5	302.1	302.3	302.3	
5	. .	. .	. .	298.5	297.2	297.0	. .	299.7	. .	302.3	. .	300.6
10	. .	. .	. .	298.6	297.0	. .	. .	300.0	. .	302.3		
15	. .	. .	. .	298.5	296.8	297.0	. .	300.5	. .	. .	. .	300.7
20	. .	. .	. .	298.1	296.8	. .	. .	. .	. .	302.0	. .	300.6
25	. .	. .	. .	298.0	. .	297.0	. .	. .	301.7			
30	. .	. .	. .	297.6	297.0	297.2	. .	300.9	302.0	302.2		
35	. .	. .	. .	297.5	297.2	. .	. .	301.2	302.1	302.0		
40	. .	. .	. .	297.4	. .	297.3	298.5	. .	302.0	302.0	301.2	
45	. .	. .	. .	297.3	. .	. .	298.7	301.5	301.9	302.3	300.8	
50	. .	. .	298.7	297.2	297.0	. .	299.0	301.7	301.9	. .	300.7	
55	. .	. .	298.5	297.3	. .	. .	299.2	302.0	302.3	302.2	300.6	

1 scale division . . . . . = 1.00896

Value of $\frac{H}{F}$ . . . . . = 0.000158

MAY 28 and 29, 1852.

Minutes of Göttingen mean time.	10 P. M.	11 hrs.	Midnight.	1 A. M.	2 hrs.	3 hrs.	4 hrs.	5 hrs.	6 hrs.	7 hrs.	8 hrs.	9 hrs.
	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.
0	300.0	299.8	299.3	299.5	299.9	299.0	298.6	298.5	299.0	298.8	299.3	299.7
5	. .	. .	299.3	299.4	299.8	299.0	298.7	298.5	299.1	298.9	299.5	299.7
10	. .	. .	299.3	299.3	299.8	299.0	298.7	298.4	299.1	299.0	299.5	299.7
15	. .	. .	299.2	299.3	299.9	299.1	298.8	298.5	299.2	299.0	299.5	299.8
20	. .	. .	299.1	299.5	299.9	299.0	298.8	298.6	299.2	299.0	299.4	299.9
25	. .	. .	299.3	299.5	299.9	299.0	298.7	298.6	299.2	299.0	299.4	299.9
30	. .	. .	299.3	299.5	299.8	299.0	298.5	298.8	299.2	299.2	299.4	299.9
35	. .	. .	299.4	299.6	299.7	299.0	298.5	298.9	299.1	299.2	299.4	299.8
40	. .	. .	299.6	299.8	299.5	299.0	298.4	299.0	299.1	299.3	299.3	299.7
45	. .	. .	299.7	299.8	299.5	299.0	298.4	299.0	299.0	299.3	299.4	299.6
50	. .	. .	299.6	299.9	299.4	298.8	298.5	299.0	299.0	299.3	299.5	299.5
55	. .	299.3	299.6	299.9	299.2	298.7	298.5	299.1	298.9	299.3	299.6	299.5

MAY 28 and 29, 1852—Continued.

Minutes of Göttingen mean time.	10 A. M.	11 hrs.	Noon.	1 P. M.	2 hrs.	3 hrs.	4 hrs.	5 hrs.	6 hrs.	7 hrs.	8 hrs.	9 hrs.
	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.
0	299.5	299.5	299.7	299.1	297.7	296.8	297.2	298.9	299.5	299.8	299.2	298.7
5	299.6	299.5	299.7	298.9	297.7	296.8	297 5	298.6	299.5	299.8	299.2	298.6
10	299.7	299.5	. .	298.8	297.6	296.4	297.8	298.4	299.5	299.8	299.3	298.6
15	299.8	299.6	. .	298.7	297.5	296.6	298.1	298.5	299.5	299.8	299.3	298.5
20	299.8	299.7	299.7	298.6	297.4	296.2	298.2	298.6	299.5	299.8	299.2	298.3
25	299.8	299.8	299.5	298.6	297.3	296.8	. .	298.6	299.6	299.7	. .	298.2
30	299.7	299.8	299.3	298.4	. .	297.2	298.4	298.8	299.4	299.6	. .	298.2
35	299.6	299.7	299.3	298.3	. .	297.5	298.4	298.9	299.5	299.5	. .	298.2
40	299.5	299.6	299.3	298.2	297.2	297.5	298.3	299.0	299.6	299.5	298.7	297.7
45	299.4	299 6	299.2	298.1	297.0	297.5	298.3	299.2	299.6	299.3	298.7	297.7
50	299.4	299.8	299.2	297.8	296.9	297.5	298.4	299.3	299.8	299.3	298.7	297.7
55	299.5	299.7	299.2	297.8	296.8	297.3	298.9	299.4	299.8	299.2	298.7	297.7

1 scale division . . . . . = 1.00896

Value of $\frac{H}{F}$ . . . . . = 0.000909

JUNE 23 and 24, 1852.

Minutes of Göttingen mean time.	10 P. M.	11 hrs.	Midnight.	1 A. M.	2 hrs.	3 hrs.	4 hrs.	5 hrs.	6 hrs.	7 hrs.	8 hrs.	9 hrs.
	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.
0	300.0	299.3	. .	299.7	. .	300.3	300.0	300.0	299.7	299.6	300.0	300.4
5	300.0	299.3	300.0	299.8	. .	300.3	300.0	299.9	299.6	299.7	300.1	300.4
10	. .	299.2	299.8	299.8	300.3	300.3	299.9	299.8	299.5	299.7	300.0	300.4
15	299.0	299.2	299.8	300.0	. .	300.1	299.9	299.6	299.5	299.7	300.0	300.5
20	299.2	299.2	299.9	300.0	. .	300.0	299.9	299.6	299.4	299.8	300.0	300.5
25	299.3	299.0	300.0	300.0	. .	300.0	299.9	299.6	299.3	299 8	300.0	300.6
30	299.3	298.9	299.8	300.0	. .	300.0	299.9	299.5	299.2	299.8	300.0	300.6
35	299.3	298.9	299.7	300.0	. .	300.0	300.0	299.6	299.1	299.9	300.0	300.6
40	299.3	298.9	299.8	300.1	. .	300.0	300.0	299.7	299.2	299.9	300.1	300.6
45	299.4	. .	299.7	. .	. .	300.0	300.0	299.7	299.3	300.0	300.2	300.5
50	299.4	. .	299.7	. .	. .	300.0	299.9	299.6	299.5	300.0	300.3	300.6
55	299.3	. .	299.6	. .	300.3	300.0	300.0	299.8	299.6	300.0	300.4	300.5

Minutes of Göttingen mean time.	10 A. M.	11 hrs.	Noon.	1 P. M.	2 hrs.	3 hrs.	4 hrs.	5 hrs.	6 hrs.	7 hrs.	8 hrs.	9 hrs.
	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.
0	300.4	300.5	300.4	299.8	298.5	298.0	298.4	299.2	298.6	298.5	298.6	298.7
5	300.4	300.4	300.4	299.7	298.4	298.0	298.3	299.0	298.5	298.6	298.7	298.7
10	300.4	300.4	300.4	299.6	298.3	298.3	298.4	299.0	298.4	298.6	298.8	298.6
15	300.5	300.4	300.4	299.4	. . .	298.3	298.4	298.9	298.4	298.6	298.8	*298.5
20	300.5	300.4	300.3	299.3	297.8	298.3	298.4	299.2	298.4	298.5	298.8	*298.4
25	300.5	300.5	300.2	299.2	297.7	298.3	298.5	299.2	298.3	298.5	298.8	. .
30	300.5	300.5	300.2	299.0	. .	298.2	298.5	299.2	298.3	298.5	298.8	298.1
35	300.6	300.5	300.0	298.8	. .	298.3	298.5	299.1	298.3	298.5	298.9	298.1
40	300.6	300.5	300.2	298.7	298.0	298.4	298.5	299.0	298.3	298.5	298.8	298.8
45	300.6	300.4	300.1	298.7	298.1	. .	298.6	298.9	298.3	298.5	298.7	298.7
50	300.6	300.3	300.0	298.6	298.2	298.4	299.0	298.8	298.4	298.6	298.7	298.6
55	300.5	300.4	299.8	298.6	298.0	298.4	299.2	298.7	298.5	298.8	298.7	298.6

* Recorded 299.5 and 299.4, respectively.

1 scale division . . . . . = 1.00896

Value of $\frac{H}{F}$ . . . . . = 0.000909

JULY 21 and 22, 1852.

Minutes of Göttingen mean time.	10 P. M.	11 hrs.	Midnight.	1 A. M.	2 hrs.	3 hrs.	4 hrs.	5 hrs.	6 hrs.	7 hrs.	8 hrs.	9 hrs.
	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.
0	. .	. .	300.3	. .	300.9	. .	300.7	300.5	300.5	300.5	301.1	301.3
5	. .	. .	. .	300.7	. .	. .	300.7	300.5	300.6	300.5	301.2	301.3
10	300.0	. .	. .	300.7	. .	. .	300.7	300.4	300.6	300.5	301.2	301.3
15	. .	. .	300.3	. .	. .	. .	300.6	300.4	300.5	300.6	301.2	301.3
20	. .	. .	. .	. .	. .	. .	300.6	300.4	300.5	300.6	301.2	301.3
25	. .	. .	. .	. .	. .	. .	. .	300.5	300.6	300.6	301.2	301.3
30	299.8	. .	300.4	300.8	. .	. .	. .	300.5	300.7	300.6	301.2	301.4
35	. .	300.2	. .	. .	. .	. .	. .	300.5	300.6	300.7	301.1	301.4
40	. .	. .	. .	. .	. .	. .	300.6	300.5	300.6	300.8	301.1	301.5
45	. .	. .	300.6	300.8	300.8	. .	. .	300.5	300.6	300.9	301.2	301.5
50	. .	. .	. .	. .	. .	. .	300.6	300.5	300.6	301.0	301.2	301.5
55	. .	. .	. .	. .	. .	. .	300.5	300.5	300.6	301.0	301.2	301.5

Minutes of Göttingen mean time.	10 A. M.	11 hrs.	Noon.	1 P. M.	2 hrs.	3 hrs.	4 hrs.	5 hrs.	6 hrs.	7 hrs.	8 hrs.	9 hrs.
	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.	Scale div.
0	301.5	. .	301.8	301.7	300.7	299.7	299.8	301.2	303.2	303.7	303.6	
5	301.5	. .	301.8	301.7	. .	299.7	. .	301.3	302.8	. .	303.7	
10	301.5	. .	301.7	301.5	. .	299.7	299.8	301.4	. .	303.7	303.7	
15	301.5	301.6	301.8	301.5	. .	299.6	. .	301.5	. .	303.7	303.6	
20	301.5	301.6	301.8	. .	. .	299.5	300.0	302.0				
25	301.5	301.6	301.8	301.4	. .	299.5	300.2	302.6	. .	304.0		
30	301.6	301.7	301.8	301.3	. .	299.4	300.4	302.6	. .	304.2		
35	301.6	301.7	301.8	301.2	. .	299.4	300.5					
40	301.7	301.7	301.8	301.2	300.0	299.6	300.8	. .	303.5	303.7		
45	301.7	301.7	301.8	301.0	299.8	299.6	300.9	. .	303.5			
50	301.6	301.7	301.8	300.7	299.8	299.7	300.9	. .	303.6	303.7		
55	301.6	301.8	. .	. .	299.7	299.8	301.0	. .	303.7	303.7	303.6	

1 scale division . . . . . = 1.′00896

Value of $\frac{H}{F}$ . . . . . = 0.000909

AUGUST 27 and 28, 1852.

Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.	Mean time, Göttingen.	Unifilar scale.
h. m.	Div.	h. m.	Div.	h. m.	Div.	h. m.	Div.	h. m.	Div.	h. m.	Div.
10 00 P. M.	300.0	4 00 A. M.	296.7	2 00 P. M.	296.2	3 20 P. M.	295.2	3 55 P. M.	295.1	6 30 P. M.	299.0
11 00	298.8	30	296.8	30	295.2	25	295.2	4 00	295.1	7 00	299.2
30	298.3	5 30	297.0	3 00	294.8	30	295.0	5	295.2	30	299.6
Midnight.	297.7	6 00	296.9	5	294.8	35	295.1	10	295.2	8 00	299.8
0 30 A. M.	297.8	1 00 P. M.	297.3	10	295.1	40	295.2	15	295.3	30	299.8
1 00	297.6	30	296.3	15	295.1	45	295.3	20	295.3	9 00	299.6
						50	295.3	6 00	296.2	50	298.7

1 scale division . . . . . = 1.′00896

Value of $\frac{H}{F}$ . . . . . = 0.000909

DECLINOMETER AND UNIFILAR OBSERVATIONS.

AT INTERVALS OF TEN SECONDS.

The following observations were made, pursuant to arrangement with Prof. A. D. Bache, Superintendent U. S. Coast Survey. Comparisons at short intervals had previously been made (in 1840) by the observatories at Cambridge, (Mass.) Philadelphia, and Washington, and at a later period by himself and Prof. Lloyd at Dublin, but were inconclusive on both occasions, as Prof. Bache supposed, because of separation of the continents at the last series, and dissimilarity of the instruments in both. When suggesting the present series, Prof. Bache intended to cause corresponding observations to be made by parties in Oregon, and at one station on the eastern coast of the United States; and it was presumed that the Toronto observatory, and a party of the Mexican boundary commission, in California, would also coöperate.

The times agreed upon were the first day of each month, unless it fell on Sunday, and in such case on the second day of the month, from $17^{hrs.}$ to $18^{hrs.}$ Göttingen, civil reckoning, and the observations were to be made during that hour at the shortest possible intervals.

JULY 1, 1850.

Chronometer time.	Declinom'r scale.	Chronometer time.	Declinom'r scale.	Chronometer time.	Declinom'r scale.	Chronometer time.	Declinom'r scale.	Chronometer time.	Declinom'r scale.
h. m. s.	Div.	h. m. s.	Div.	h. m. s.	Div.	h. m. s.	Div.	h. m. s.	Div.
4 39 35	51.4	4 43 45	51.5	4 48 5	51.5	4 52 15	51.5	4 56 25	51.6
45	51.4	55	51.5	15	51.5	25	51.5	35	51.6
55	51.4	44 5	51.5	25	51.5	35	51.5	45	51.6
40 5	51.4	15	51.5	35	51.5	45	51.5	55	51.6
15	51.4	25	51.5	45	51.5	55	51.5	57 5	51.6
25	51.4	35	51.5	55	51.5	53 5	51.6	15	51.6
35	51.4	45	51.5	49 5	51.5	15	51.6	25	51.6
45	51.4	55	51.5	15	51.5	25	51.6	35	51.6
55	51.4	45 5	51.5	25	51.5	35	51.6	45	51.6
41 5	51.4	15	51.5	35	51.5	45	51.6	55	51.6
15	51.4	25	51 4	45	51.5	55	51.6	58 5	51.6
25	51.4	35	51.4	55	51.5	54 5	51.6	15	51.6
35	51.4	45	51.4	50 5	51.5	15	51.6	25	51.6
45	51.4	55	51.4	15	51.5	25	51.6	35	51.6
55	51.4	46 5	51.4	25	51.5	35	51.6	45	51.6
42 5	51.4	15	51.4	35	51.5	45	51.6	55	51.6
15	51.4	25	51.4	45	51.5	55	51.6	59 5	51.6
25	51.4	35	51.4	55	51.5	55 5	51.6	15	51.6
35	51.4	45	51.4	51 5	51.5	15	51.6	25	51.6
45	51.4	55	51.4	15	51.5	25	51.6	35	51.6
55	51.4	47 5	51.4	25	51.5	35	51.6	45	51.7
43 5	51.4	15	51.5	35	51.5	45	51.6	55	51.7
15	51.5	35	51.5	45	51.5	55	51.6	5 0 5	51.7
25	51.5	45	51.5	55	51.5	56 5	51.6	15	51.7
35	51.5	55	51.5	52 5	51.5	15	51.6	25	51.7

JULY 1, 1850—Continued.

Chronometer time.	Declinom'r scale.	Chronometer time.	Declinom'r scale.	Chronometer time.	Declinom'r scale.	Chronometer time.	Declinom'r scale.	Chronometer time.	Declinom'r scale.
h. m. s.	Div.	h. m. s.	Div.	h. m. s.	Div.	h. m. s.	Div.	h. m. s.	Div.
5 00 35	51.7	5 8 25	51.8	5 16 15	52.0	5 24 5	51.1	5 31 55	52.0
45	51.7	35	51.8	25	52.0	15	51.5	32 5	52.0
55	51.7	45	51.8	35	52.0	25	51.3	15	52.0
1 5	51.7	55	51.8	45	52.0	35	51.2	25	52.0
15	51.7	9 5	51.9	55	52.0	45	51.4	35	52.0
25	51.7	15	51.9	17 5	52.0	55	51.3	45	52.1
35	51.7	25	51.9	15	52.0	25 5	51.5	55	52.1
45	51.7	35	51.9	25	52.0	15	51.5	33 5	52.1
55	51.7	45	51.9	35	52.0	25	51.5	15	52.1
2 5	51.7	55	51.9	45	52.0	35	51.5	25	52.1
15	51.7	10 5	51.9	55	52.0	45	51.7	35	52.1
25	51.7	15	51.9	18 5	52.0	55	51.7	45	52.1
35	51.7	25	51.9	15	52.0	26 5	51.8	55	52.1
45	51.7	35	51.9	25	52.0	15	51.8	34 5	52.1
55	51.7	45	51 9	35	52.0	25	51.8	15	52.1
3 5	51.7	55	51.9	45	52.0	35	51.8	25	52.1
15	51.7	11 5	51.9	55	52.0	45	51.9	35	52.1
25	51.7	15	51.9	19 5*	51.7	55	51.8	45	52.1
35	51.8	25	51.9	15	51.8	27 5*	51.9	55	52.1
45	51.8	35	51.9	25	51.8	15	52.0	35 5	52.1
55	51.8	45	51.9	35	51.8	25	52.0	15	52.1
4 5	51.8	55	51.9	45	51.9	35	52.0	25	52.1
15	51.8	12 5	51.9	55	51.8	45	52.0	35	52.1
25	51.8	15	51.9	20 5	51.9	55	52.0	45	52.1
35	51.8	25	51.9	15	51.9	28 5	52.0	55	52.1
45	51.8	35	51.9	25	51.9	15	52.0	36 5	52.1
55	51.8	45	51.9	35	51.9	25	52.0	15	52.1
5 5	51.8	55	51.9	45	52.0	35	52.0	25	52.1
15	51.8	13 5	51.9	55	51.9	45	52.0	35	52.1
25	51.8	15	51.9	21 5	51.9	55	52.0	45	52.1
35	51.8	25	51.9	15	52.0	29 5	52.0	55	52.1
45	51.8	35	51.9	25	52.0	15	52.0	37 5	52.1
55	51.8	45	51.9	35	52.0	25	52.0	15	52.1
6 5	51.8	55	51.9	45	52.0	35	52.0	25	52.1
15	51.8	14 5	51.9	55	52.0	45	52.0	35	52.1
25	51.8	15	51.9	22 5	52.0	55	52.0	45	52.1
35	51.8	25	51.9	15	51.9	30 5	52.0	55	52.1
45	51.8	35	51.9	25	51.8	15	52.0	38 5	52.1
55	51.8	45	51.9	35	51.9	25	52.0	15	52.1
7 5	51.8	55	51.9	45	51.0	35	52.0	25	52.1
15	51.8	15 5	51.9	55	51.2	45	52.0	35	52.1
25	51.8	15	51.9	23 5	51.5	55	52.0	45	52.1
35	51.8	25	51.9	15	51.7	31 5	52.0	55	52.1
45	51.8	35	52.0	25	51.0	15	52.0	39 5	52.1
55	51.8	45	52.0	35	51.2	25	52.0	15	52.1
8 5	51.8	55	52.0	45	51.2	35	52.0	25	52.1
15	51.8	16 5	52.0	55	51.0	45	52.0	35	52.1

* At 5h. 19m. 5s. a heavy cart passing in the street violently agitated the needle, and a gentleman with a number of keys, &c., coming in a few moments after, it did not settle again until 5h. 27m. 15s.

Chronometer slow at 0h. 00m., Santiago, 18m. 23s.02, and gaining daily 4s.144.

Increasing numbers denote increasing easterly declination.

1 scale division . . . . . $= 2'\ 10''$

Value of $\frac{H}{F}$ . . . . . $= 0.00288$

AUGUST 1, 1850.

Chronometer time.	Declinom'r scale.	Chronometer time.	Declinom'r scale.	Chronometer time.	Declinom'r scale.	Chronometer time.	Declinom'r scale.	Chronometer time.	Declinom'r scale.
h. m. s.	Div.	h. m. s.	Div.	h. m. s.	Div.	h. m. s.	Div.	h. m. s.	Div.
9 50 0	67.9	10 00 20	68.0	10 10 40	68.5	10 21 0	68.9	10 31 20	69.1
10	67.9	30	68.0	50	68.5	10	68.9	30	69.1
20	67.9	40	68.0	11 0	68.5	20	68.9	40	69.1
30	67.9	50	68.0	10	68.5	30	68.9	50	69.1
40	67.9	1 0	68.1	20	68.5	40	69.0	32 0	69.1
50	67.9	10	68.1	30	68.6	50	69.0	10	69.1
51 0	67.9	20	68.1	40	68.6	22 0	69.0	20	69.1
10	67.9	30	68.1	50	68.6	10	69.0	30	69.1
20	67.9	40	68.1	12 0	68.6	20	69.0	40	69.1
30	67.9	50	68.1	10	68.6	30	69.0	50	69.1
40	67.9	2 0	68.1	20	68.6	40	69.0	33 0	69.1
50	67.9	10	68.1	30	68.6	50	69.0	10	69.1
52 0	67 9	20	68.1	40	68.6	23 0	69.0	20	69.1
10	67.9	30	68.1	50	68.6	10	69.0	30	69.1
20	67.9	40	68.1	13 0	68.6	20	69.0	40	69.1
30	67.9	50	68.1	10	68.6	30	69.0	50	69.1
40	67.9	3 0	68.1	20	68.6	40	69.0	34 0	69.1
50	68.0	10	68.1	30	68.6	50	69.0	10	69.1
53 0	68.0	20	68.1	40	68.6	24 0	69.0	20	69.1
10	68.0	30	68.1	50	68.6	10	69.0	30	69.1
20	68.0	40	68.1	14 0	68.6	20	69.0	40	69.1
30	68.0	50	68.2	10	68.6	30	69.0	50	69.1
40	68.0	4 0	68.2	20	68.6	40	69.0	35 0	69.1
50	68.0	10	68.2	30	68.7	50	69.0	10	69.1
54 0	68.0	20	68.2	40	68.7	25 0	69.0	20	69.1
10	68.0	30	68.2	50	68.7	10	69.0	30	69.1
20	68.0	40	68.2	15 0	68.7	20	69.0	40	69.1
30	68.0	50	68.2	10	68.7	30	69.0	50	69.1
40	68.0	5 0	68.2	20	68.7	40	69.0	36 0	69.1
50	68.0	10	68.2	30	68.7	50	69.0	10	69.1
55 0	68.0	20	68.2	40	68.7	26 0	69.0	20	69.1
10	68.0	30	68.2	50	68.7	10	69.0	30	69.1
20	68.0	40	68.3	16 0	68.7	20	69.0	40	69.1
30	68.0	50	68.3	10	68.7	30	69.0	50	69.1
40	68.0	6 0	68.3	20	68.8	40	69.0	37 0	69.1
50	68.0	10	68.3	30	68.8	50	69.0	10	69.1
56 0	68.0	20	68.3	40	68.8	27 0	69.0	20	69.1
10	68.0	30	68.3	50	68.8	10	69.0	30	69.1
20	68.0	40	68.3	17 0	68.8	20	69.0	40	69.1
30	68.0	50	68.3	10	68.8	30	69.1	50	69.1
40	68.0	7 0	68.3	20	68.8	40	69.1	38 0	69.1
50	68.0	10	68.3	30	68.8	50	69.1	10	69.2
57 0	68.0	20	68.4	40	68.8	28 0	69.1	20	69.2
10	68.0	30	68.4	50	68.8	10	69.1	30	69.2
20	68.0	40	68.4	18 0	68.8	20	69.1	40	69.2
30	68.0	50	68.4	10	68.8	30	69.1	50	69.2
40	68.0	8 0	68.4	20	68.9	40	69.1	39 0	69.2
50	68.0	10	68.4	30	68.9	50	69.1	10	69.2
58 0	68.0	20	68.4	40	68.9	29 0	69.1	20	69.2
10	68.0	30	68.4	50	6.89	10	69.1	30	69.2
20	68.0	40	68.4	19 0	68.9	20	69.1	40	69.2
30	68.0	50	68.4	10	68.9	30	69.1	50	69.2
40	68.0	9 0	68.4	20	68.9	40	69.1	40 0	69.2
50	68.0	10	68.5	30	68.9	50	69.1	10	69.2
59 0	68.0	20	68.5	40	68.9	30 0	69.1	20	69.2
10	68.0	30	68.5	50	68.9	10	69.1	30	69.2
20	68.0	40	68.5	20 0	68.9	20	69.1	40	69.2
30	68.0	50	68.5	10	68.9	30	69.1	50	69.2
40	68.0	10 0	68.5	20	68.9	40	69.1	41 0	69.2
50	68.0	10	68.5	30	68.9	50	69.1	10	69.2
10 00 0	68.0	20	68.5	40	68.9	31 0	69.1	20	69.2
10	68.0	30	68.5	50	68.9	10	69.1	30	69.2

AUGUST 1, 1850—Continued.

Chronometer time.	Declinom'r scale.	Chronometer time.	Declinom'r scale.	Chronometer time.	Declinom'r scale.	Chronometer time.	Declinom'r scale.	Chronometer time.	Declinom'r scale.
h. m. s.	Div.	h. m. s.	Div.	h. m. s.	Div.	h. m. s.	Div.	h. m. s.	Div.
10 41 40	69.2	10 45 30	69.2	10 49 10	69.3	10 52 50	69.4	10 56 30	69.4
50	69.2	40	69.2	20	69.3	53 0	69.4	40	69.4
42 0	69.2	50	69.2	30	69.3	10	69.4	50	69.4
10	69.2	46 0	69.2	40	69.3	20	69.4	57 0	69.4
20	69.2	10	69.2	50	69.3	30	69.4	10	69.4
30	69.2	20	69.2	50 0	69.3	40	69.4	20	69.4
40	69.2	30	69 2	10	69.3	50	69.4	30	69.4
50	69.2	40	69.2	20	69.3	54 0	69.4	40	69.4
43 0	69.2	50	69.2	30	69.3	10	69.4	50	69.4
10	69.2	47 0	69.2	40	69.4	20	69.4	58 0	69.4
20	69.2	10	69.2	50	69.4	30	69.4	10	69.4
30	69.2	20	69.2	51 0	69.4	40	69.4	20	69.4
40	69.2	30	69.2	10	69.4	50	69.4	30	69.4
50	69.2	40	69.2	20	69.4	55 0	69.4	40	69.4
44 0	69.2	50	69.3	30	69.4	10	69.4	50	69.4
10	69.2	48 0	69.3	40	69.4	20	69.4	59 0	69.4
20	69.2	10	69.3	50	69.4	30	69.4	10	69.4
30	69.2	20	69.3	52 0	69.4	40	69.4	20	69.4
40	69.2	30	69.3	10	69.4	50	69.4	30	69.4
50	69.2	40	69.3	20	69.4	56 0	69.4	40	69.4
45 0	69.2	50	69.3	30	69.4	10	69.4	59	69.4
10	69.2	49 0	69.3	40	69.4	20	69.4	11 0	69.4
20	69.2								

Chronometer at 0h. 0m. mean time Santiago; slow of sideral time 25s.47; losing daily on sideral time 1s.207.

Value of scale division and $\frac{H}{F}$ as before.

OBSERVATIONS WITH THE UNIFILAR.

SEPTEMBER 2, 1850.

Chronometer time.	Unifilar scale.	Chronometer time.	Unifilar scale.	Chronometer time.	Unifilar scale.	Chronometer time.	Unifilar scale.	Chronometer time.	Unifilar scale.
h. m. s.	Div.	h. m. s.	Div.	h. m. s.	Div.	h. m. s.	Div.	h. m. s.	Div.
5 6 30	300.4	5 13 50	300.2	5 21 10	300.8	5 28 30	301.0	5 35 50	301.5
40	300.4	14 0	300.2	20	300.8	40	301.0	36 0	301.5
50	300.4	10	300.2	30	300.8	50	301.0	10	301.5
7 0	300.5	20	300.2	40	301.0	29 0	301.0	20	301.5
10	300.5	30	300.2	50	301.0	10	301.2	30	301.5
20	300.5	40	300.2	22 0	301.0	20	301.2	40	301.5
30	300.5	50	300.2	10	301.0	30	301.2	50	301.5
40	300.5	15 0	300.2	20	301.0	40	301.2	37 0	301.5
50	300.5	10	300.2	30	301.0	50	301.2	10	301.5
8 0	300.4	20	300.2	40	301.0	30 0	301.2	20	301.5
10	300.4	30	300.2	50	301.0	10	301.2	30	301.5
20	300.4	40	300.2	23 0	301.0	20	301.2	40	301.5
30	300.4	50	300.2	10	301.0	30	301.2	50	301.5
40	300.4	16 0	300.2	20	301.0	40	301.2	38 0	301.5
50	300.4	10	300.2	30	301.0	50	301.2	10	301.5
9 0	300.4	20	300 2	40	301.0	31 0	301.2	20	301.5
10	300.3	30	300.2	50	301.0	10	301.2	30	301.5
20	300.3	40	300.2	24 0	301.0	20	301.2	40	301.5
30	300.3	50	300.4	10	301.0	30	301.2	50	301.5
40	300.3	17 0	300.4	20	301.0	40	301.2	39 0	301.5
50	300.3	10	300.4	30	301.0	50	301.2	10	301.5
10 0	300.3	20	300.4	40	301.0	32 0	301.2	20	301.5
10	300.3	30	300.4	50	301.0	10	301.2	30	301.5
20	300.3	40	300.4	25 0	301.0	20	301.2	40	301.5
30	300.3	50	300.4	10	301.0	30	301.2	50	301.5
40	300.3	18 0	300.4	20	301.0	40	301.2	40 0	301.5
50	300.3	10	300.5	30	301.0	50	301.2	10	301.5
11 0	300.3	20	300.5	40	301.0	33 0	301.2	20	301.5
10	300.3	30	300.5	50	301.0	10	301.2	30	301.5
20	300.2	40	300.6	26 0	301.0	20	301.2	40	301.6
30	300.2	50	300.6	10	301.0	30	301.2	50	301.6
40	300.2	19 0	300.6	20	301.0	40	301.2	41 0	301.6
50	300.2	10	300.6	30	301.0	50	301.4	10	301.6
12 0	300.2	20	300.6	40	301.0	34 0	301.4	20	301.6
10	300.2	30	300.7	50	301.0	10	301.4	30	301.6
20	300.2	40	300.7	27 0	301.0	20	301.4	40	301.6
30	300.2	50	300.7	10	301.0	30	301.4	50	301.6
40	300.2	20 0	300.7	20	301.0	40	301.4	42 0	301.6
50	300.2	10	300.7	30	301.0	50	301.4	10	301.6
13 0	300.2	20	300.7	40	301.0	35 0	301.4	20	301.6
10	300.2	30	300.8	50	301.0	10	301.4	30	301.6
20	300.2	40	300.8	28 0	301.0	20	301.4	40	301.6
30	300.2	50	300.8	10	301.0	30	301.4	50	301.6
40	300.2	21 0	300.8	20	301.0	40	301.4	43 0	301.6

Chronometer fast of mean Greenwich time, at 0h. 0m. Santiago, 22m. 46s.83; gaining daily 4s.95.

Increasing numbers denote increasing easterly declination.

1 scale division . . . . . $= 1'.00696$

Value of $\frac{H}{F}$ . . . . . $= 0.000197$

OBSERVATIONS WITH THE DECLINOMETER.

NOVEMBER 1, 1850.

Chronometer time.	Declinometer scale.	Chronometer time.	Declinometer scale.	Chronometer time.	Declinometer scale.	Chronometer time.	Declinometer scale.	Chronometer time.	Declinometer scale.
h. m. s.	Div.	h. m. s.	Div.	h. m. s.	Div.	h. m. s.	Div.	h. m. s.	Div.
14 45 0	50.2	14 53 10	50.1	15 3 0	50.0	15 13 10	50.1	15 21 20	50.1
10	50.3	20	50.1	10	50.0	20	50.1	30	50.0
20	50.3	30	50.1	20	50.0	30	50.1	40	50.0
30	50.2	40	50.1	30	50.0	40	50.1	50	50.0
40	50.2	50	50.1	40	50.0	50	50.1	22 0	50.1
50	50.2	54 0	50.1	50	50.0	14 0	50.1	10	50.1
46 0	50.2	10	50.1	4 0	50.0	10	50.1	20	50.1
10	50.3	20	50.1	5 20	50.0	20	50.1	30	50.1
20	50.3	30	50.1	30	50.1	30	50.1	40	50.1
30	50.2	40	50.1	40	50.0	40	50.1	50	50.1
40	50.2	50	50.1	50	50.0	50	50.1	23 0	50.1
50	50.3	55 0	50.1	6 0	50.0	15 0	50.1	10	50.1
47 0	50.2	10	50.1	10	50.1	10	50.1	20	50.1
10	50.2	20	50.1	20	50.1	20	50.1	30	50.1
20	50.2	30	50.1	30	50.1	30	50.1	40	49.9
30	50.2	40	50.1	40	50.1	40	50.0	50	49.9
40	50.2	50	50.1	50	50.1	50	50.0	24 0	49.9
50	50.2	56 0	50.1	7 0	50.1	16 0	50.0	10	49.9
48 0	50.2	10	50.1	10	50.1	10	50.1	20	49.9
10	50.2	20	50.1	20	50.1	20	50.1	30	49.9
20	50.2	30	50.2	30	50.1	30	50.1	40	49.9
30	50.2	40	50.2	8 30	50.1	40	50.1	50	49.9
40	50.2	50	50.2	40	50.1	50	50.1	25 0	49.9
50	50.2	57 0	50.1	50	50.1	17 0	50.1	10	49.9
49 0	50.3	10	50.1	9 0	50.1	10	50.1	20	49.9
10	50.2	20	50.1	10	50.1	20	50.1	30	49.8
20	50.2	30	50.2	20	50.1	30	50.1	40	49.8
30	50.3	40	50.2	30	50.1	40	50.1	50	49.8
40	50.3	50	50.2	40	50.1	50	50.1	26 0	49.8
50	50.3	58 0	50.2	50	50.1	18 0	50.1	10	49.8
50 0	50.3	10	50.2	10 0	50.1	10	50.1	20	49.8
10	50.2	20	50.2	10	50.1	20	50.1	30	49.8
20	50.2	30	50.2	20	50.1	30	50.1	40	49.8
30	50.3	40	50.3	30	50.1	40	50.1	50	49.8
40	50.3	50	50.2	40	50.1	50	50.1	27 0	49.8
50	50.3	59 0	50.2	50	50.1	19 0	50.1	10	49.8
51 0	50.2	10	50.2	11 0	50.1	10	50.1	20	49.8
10	50.2	20	50.2	10	50.1	20	50.1	30	49.8
20	50.2	30	50.3	20	50.1	30	50.1	40	49.8
30	50.2	40	50.2	30	50.1	40	50.1	50	49.8
40	50.2	50	50.2	40	50.1	50	50.1	28 0	49.8
50	50.1	15 1 40	50.0	50	50.1	20 0	50.1	10	49.8
52 0	50.1	50	50.2	12 0	50.1	10	50.1	20	49.8
10	50.1	2 0	50.0	10	50.1	20	50.1	30	49.8
20	50.1	10	50.0	20	50.1	30	50.1	40	49.8
30	50.1	20	50.0	30	50.1	40	50.1	50	49.8
40	50.1	30	50.0	40	50.1	50	50.1	29 0	49.8
50	50.1	40	50.0	50	50.1	21 0	50.1	10	49.8
53 0	50.1	50	50.0	13 0	50.1	10	50.1	20	49.8

NOVEMBER 1, 1850—Continued.

Chronometer time.	Declinometer scale.	Chronometer time.	Declinometer scale.	Chronometer time.	Declinometer scale.	Chronometer time.	Declinometer scale.	Chronometer time.	Declinom'r scale.
h. m. s.	Div.	h. m. s.	Div.	h. m. s.	Div.	h. m. s.	Div.	h. m. s.	Div.
15 29 30	49.8	15 37 40	49.8	15 45 50	49.8	15 54 0	49.5	16 2 10	49.4
40	49.9	50	49.8	46 0	49.8	10	49.5	20	49.3
50	49.9	38 0	49.8	10	49.8	20	49.5	30	49.3
30 0	49.9	10	49.8	20	49.8	30	49.5	40	49.3
10	49.9	20	49.8	30	49.8	40	49.5	50	49.3
20	49.9	30	49.8	40	49.8	50	49.5	3 0	49.3
30	49.9	40	49.8	50	49.8	55 0	49.5	10	49.3
40	49.9	50	49.8	47 0	49.8	10	49.5	20	49.3
50	49.9	39 0	49.8	10	49.8	20	49.5	30	49.3
31 0	49.9	10	49.8	20	49.8	30	49.5	40	49.3
10	49.9	20	49.8	30	49.8	40	49.5	50	49.3
20	49.9	30	49.8	40	49.8	50	49.5	4 0	49.3
30	49.9	40	49.8	50	49.7	56 0	49.5	10	49.3
40	49.9	50	49.8	48 0	49.7	10	49.5	20	49.3
50	49.9	40 0	49.8	10	49.7	20	49.5	30	49.3
32 0	49.9	10	49.8	20	49.7	30	49.5	40	49.3
10	49.9	20	49.8	30	49.7	40	49.5	50	49.3
20	49.9	30	49.7	40	49.7	50	49.5	5 0	49.3
30	49.9	40	49.7	50	49.7	57 0	49.5	10	49.3
40	49.9	50	49.7	49 0	49.7	10	49.5	20	49.3
50	49.9	41 0	49.7	10	49.7	20	49.5	30	49.3
33 0	49.9	10	49.7	20	49.7	30	49.5	40	49.3
10	49.9	20	49.7	30	49.7	40	49.5	50	49.3
20	49.9	30	49.7	40	49.7	50	49.5	6 0	49.3
30	49.9	40	49.7	50	49.7	58 0	49.5	10	49.3
40	49.8	50	49.7	50 0	49.7	10	49.5	20	49.3
50	49.8	42 0	49.8	10	49.7	20	49.5	30	49.3
34 0	49.8	10	49.8	20	49.7	30	49.5	40	49.3
10	49.8	20	49.8	30	49.7	40	49.5	50	49.3
20	49.8	30	49.8	40	49.7	50	49.5	7 0	49.3
30	49.9	40	49.8	50	49.7	59 0	49.5	10	49.3
40	49.9	50	49.8	51 0	49.7	10	49.5	20	49.3
50	49.9	43 0	49.8	10	49.6	20	49.5	30	49.3
35 0	49.9	10	49.8	20	49.6	30	49.5	40	49.2
10	49.9	20	49.8	30	49.6	40	49.4	50	49.2
20	49.9	30	49.8	40	49.6	50	49.5	8 0	49.2
30	49.9	40	49.8	50	49.6	16 0 0	49.4	10	49.2
40	49.9	50	49.8	52 0	49.6	10	49.4	20	49.2
50	49.9	44 0	49.8	10	49.6	20	49.4	30	49.2
36 0	49.9	10	49.8	20	49.6	30	49.4	40	49.2
10	49.9	20	49.8	30	49.6	40	49.4	50	49.2
20	49.9	30	49.8	40	49.6	50	49.4	9 0	49.2
30	49.9	40	49.8	50	49.5	1 0	49.4	10	49.2
40	49.8	50	49.8	53 0	49.5	10	49.4	20	49.2
50	49.8	45 0	49.8	10	49.5	20	49.4	30	49.2
37 0	49.8	10	49.8	20	49.5	30	49.4	40	49.2
10	49.8	20	49.8	30	49.5	40	49.4	50	49.2
20	49.8	30	49.8	40	49.5	50	49.4	10 0	49.2
30	49.8	40	49.8	50	49.5	2 0	49.4		

Observed with sidereal chronometer.

Chronometer slow of sidereal time at 0h. 0m. mean time Santiago, 5s.24.—losing daily 0s.71.

Increasing numbers denote *decreasing* easterly declination.

1 scale division . . . . . $= 2'\ 10''$

Value of $\frac{H}{F}$ . . . . . $= 0.00288$

OBSERVATIONS WITH THE UNIFILAR.

NOVEMBER 1, 1850.

Chronometer time.	Unifilar scale.	Chronometer time.	Unifilar scale.	Chronometer time.	Unifilar scale.	Chronometer time.	Unifilar scale.	Chronometer time.	Unifilar scale.
h. m. s.	Div.	h. m. s.	Div.	h. m. s.	Div.	h. m. s.	Div.	h. m. s.	Div.
5 50 0	300.1	6 1 40	300 2	6 17 20	300.7	6 33 0	301.4	6 48 40	301.9
10	300.1	2 0	300.2	40	300.7	20	301.5	49 0	302.0
20	300.1	20	300.2	18 0	300.8	40	301.5	20	302.0
30	300.1	40	300.3	20	300.8	34 0	301.5	40	302.0
40	300.1	3 0	300.3	40	300.8	20	301.5	50 0	302.0
50	300.1	20	300.3	19 0	300.8	40	301.6	20	302.0
51 0	300.1	40	300.3	20	300.8	35 0	301.6	40	302.0
10	300.1	4 0	300.3	40	300.8	20	301.6	51 0	302.0
20	300.1	20	300.3	20 0	300.9	40	301.6	20	302.0
30	300.0	40	300.3	20	300.9	36 0	301.7	40	302.0
40	300.1	5 0	300.4	40	300.9	20	301.7	52 0	302.0
50	300 1	20	300.4	21 0	300.9	40	301.7	20	302.0
52 0	300.1	40	300.4	20	300.9	37 0	301.7	40	302.0
10	300.1	6 0	300.4	40	300.9	20	301.7	53 0	302.0
20	300.1	20	300.4	22 0	300.9	40	301.7	20	302.1
30	300.0	40	300.4	20	300.9	38 0	301.7	40	302.1
40	300.1	7 0	300.4	40	300.9	20	301.7	54 0	302.1
50	300 1	20	300.4	23 0	301.0	40	301.7	20	302.1
53 0	300.1	40	300.4	20	301.0	39 0	301.7	40	302.2
10	300.1	8 0	300.4	40	301.0	20	301.7	55 0	302.2
20	300.1	20	300.4	24 0	301.0	40	301.7	20	302.2
30	300.1	40	300.4	20	301.0	40 0	301.8	40	302.2
40	300.1	9 0	300.4	40	301.0	20	301.8	56 0	302.2
50	300.1	20	300.5	25 0	301.0	40	301.8	20	302.2
54 0	300 1	40	300.4	20	301.0	41 0	301.8	40	302.2
20	300.1	10 0	300.5	40	301.1	20	301.8	57 0	302.2
40	300.1	20	300.4	26 0	301.1	40	301.8	20	302.2
55 0	300.1	40	300.5	20	301.1	42 0	301.8	40	302.2
20	300.1	11 0	300.5	40	301.1	20	301.8	58 0	302.2
40	300.1	20	300 5	27 0	301.1	40	301.9	20	302.3
56 0	300.1	40	300 5	20	301.1	43 0	301.9	40	302.3
20	300.1	12 0	300.5	40	301.2	20	301.9	59 0	302.3
40	300.1	20	300.5	28 0	301.2	40	301.9	20	302.2
57 0	300.1	40	300.5	20	301.2	44 0	301.9	40	302.2
20	300.1	13 0	300.5	40	301.2	20	301.9	7 0 0	302.2
40	300.1	20	300.5	29 0	301.2	40	301 9	20	302.2
58 0	300.1	40	300.6	20	301.3	45 0	301.9	40	302.2
20	300.1	14 0	300.6	40	301.3	20	301.9	1 0	302.2
40	300.1	20	300.6	30 00	301.3	40	301.9	20	302.2
59 0	300.1	40	300.6	20	301 3	46 0	301.9	40	302.2
20	300.1	15 0	300.6	40	301 3	20	301.9	2 0	302.2
40	300.1	20	300.6	31 0	301.4	40	301.9	20	302.2
6 0 0	300.1	40	300.6	20	301.4	47 0	301.9	40	302.2
20	300.1	16 0	300.6	40	301.4	20	301 9	3 0	302.2
40	300.1	20	300.6	32 0	301.4	40	301.9	20	302.2
1 0	300.2	40	300.7	20	301.4	48 0	301.9	40	302.2
20	300.2	17 0	300?7	40	301.4	20	301.9	4 0	302.1

These observations were noted with the unifilar, without deflector, in the Orchard, where all absolute measures are made. It was intended to have observed for changes of horizontal force, but the deflector was neglected, and thus they are merely changes of declination. It was impossible to commence at 18h. Göttingen time.

Chronometer at 0h. Santiago, 27*m*. 15*s*.92 fast of Greenwich mean time; gaining daily 4*s*.8.

1 scale division . . . . . = 1.00896

Value of $\frac{H}{F}$ . . . . . = 0.000131

VARIATIONS OF THE HORIZONTAL FORCE.

EXPERIMENTS FOR ASCERTAINING DIURNAL CHANGES OF THE HORIZONTAL FORCE.

Prior to the departure of the Expedition from the United States it was proposed by Prof. A. D. Bache, Superintendent U. S. Coast Survey, that a series of observations be made to ascertain how far changes of the horizontal force and declination are synchronous in the two hemispheres. Those for the horizontal force were to be made as rapidly as possible, from $18^{hrs.}$ to $19^{hrs.}$ mean time Göttingen, on the first day of each month, unless that day should be Sunday, and then on the second day of the month.

As the Expedition was not supplied with a portable bifilar magnetometer with which the former changes could be directly observed, they may be inferred from variations of the angle of deflection of the unifilar magnet when the time of vibration of the deflector, its magnetic moment, and the distance of the *centres* of the magnets, are known. The following observations were made to that end; and such data necessary for the reduction as are not contained in the foot-notes, will be found under corresponding dates of the experiments for absolute measure in the succeeding pages.

JULY 1, 1850.

Chronometer time.	Unifilar scale.	Chronometer time.	Unifilar scale.	Chronometer time.	Unifilar scale.	Chronometer time.	Unifilar scale.
h. m. s.	Div.	h. m. s.	Div.	h. m. s.	Div.	h. m. s.	Div.
6 58 35	299 8	7 14 35	299.7	7 30 35	299.6	7 46 35	299.2
7 0 35	299.8	16 35	299 6	32 35	299.5	48 35	299.1
2 35	299.8	18 35	299 6	34 35	299.4	50 35	299.0
4 35	299.8	20 35	299 6	36 35	299.4	52 35	298.8
6 35	299.8	22 35	299.6	38 35	299.4	54 35	298.7
8 35	299 8	24 35	299.6	40 35	299.3	56 35	298.6
10 35	299.8	26 35	299.6	42 35	299.3	58 35	298.6
12 35	299.8	28 35	299.6	44 35	299.2	8 0 35	298.5

1 scale division . . . . . $= 1'.00896$

Value of $\frac{H}{F}$ . . . . . $= 0.000198$

T' . . . . $= 3^s.03457$ $\quad u$ . . . . $= 5^\circ\ 9'\ 40''$ $\quad r$ . . . . $= 1.15$ *ft.*

θ' . . . . $= 56^\circ.4$ $\quad t$ . . . . $= 56^\circ.5$ Deflector west; north pole east.

The observations were made with a sidereal chronometer, which was fast of Greenwich *mean* time at $0^h.\ 00^m.$ Santiago, $1^h.\ 55^m.\ 34^s.67$, and was gaining daily $3^m.\ 55^s.70$.

AUGUST 1, 1850.

Chronometer time.	Unifilar scale.	Chronometer time.	Unifilar scale.	Chronometer time.	Unifilar scale.	Chronometer time.	Unifilar scale.	Chronometer time.	Unifilar scale.
h. m. s.	Div.	h. m. s.	Div.	h. m. s.	Div.	h. m. s.	Div.	h. m. s.	Div.
5 45 0	300.3	5 55 20	300.4	6 5 40	300.0	6 16 0	300.1	6 26 20	300.1
10	300.3	30	300.4	50	300.0	10	300.1	30	300.1
20	300.2	40	300.4	6 0	300.0	20	300.1	40	300.1
30	300.3	50	300.4	10	300.0	30	300.1	50	300.0
40	300.3	56 0	300.4	20	300.0	40	300.1	27 0	300.0
50	300.2	10	300.3	30	300.1	50	300.1	10	300.0
46 0	300.3	20	300.4	40	300.1	17 0	300.0	20	300.0
10	300.3	30	300.3	50	300.0	10	300.0	30	300.1
20	300.3	40	300.3	7 0	300.0	20	300.0	40	300.1
30	300.3	50	300.3	10	300.0	30	300.0	50	300.1
40	300.3	57 0	300.3	20	300.0	40	300.0	28 0	300.1
50	300.4	10	300.4	30	300.0	50	300.0	10	300.0
47 0	300.3	20	300.4	40	300.0	18 0	300.0	20	300.1
10	300.3	30	300.3	50	300.1	10	300.0	30	300.1
20	300.3	40	300.3	8 0	300.1	20	300.1	40	300.0
30	300.3	50	300.3	10	300.1	30	300.1	50	300.0
40	300.3	58 0	300.3	20	300.1	40	300.0	29 0	300.0
50	300.3	10	300.3	30	300.1	50	300.0	10	300.0
48 0	300.4	20	300 3	40	300.0	19 0	300.0	20	300.0
10	300.4	30	300 4	50	300.0	10	300.0	30	300.1
20	300.5	40	300.3	9 0	300.0	20	300.0	40	300.1
30	300.4	50	300.3	10	300.0	30	300 0	50	300.0
40	300.3	59 0	300.3	20	300.0	40	300.0	30 0	300.0
50	300.3	10	300.4	30	300.1	50	300.0	10	300.0
49 0	300.4	20	300.3	40	300.0	20 0	300.0	20	300.0
10	300.4	30	300.3	50	300.1	10	300.0	30	300.0
20	300.4	40	300.3	10 0	300.1	20	300.0	40	300.0
30	300.4	50	300.3	10	300.0	30	300.0	50	300.0
40	300.4	6 0 0	300.3	20	300.0	40	300.0	31 0	300.0
50	300.5	10	300.3	30	300.1	50	300.0	10	300.0
50 0	300.4	20	300.3	40	300.0	21 0	300.1	20	300.0
10	300.5	30	300.3	50	300.0	10	300.0	30	300.0
20	300.5	40	300.3	11 0	300.0	20	300.1	40	300.0
30	300.6	50	300.3	10	300.0	30	300.1	50	300.0
40	300.5	1 0	300.3	20	300.1	40	300.1	32 0	300.0
50	300 5	10	300.3	30	300.1	50	300.0	10	300.0
51 0	300.5	20	300.3	40	300.0	22 0	300.1	20	299.9
10	300.6	30	300.3	50	300.1	10	300.1	30	299 9
20	300.5	40	300.3	12 0	300.1	20	300.0	40	299.9
30	300.6	50	300.3	10	300.0	30	300.0	50	299.9
40	300.5	2 0	300.3	20	300.1	40	300 1	33 0	299.9
50	300.5	10	300.2	30	300.1	50	300.1	10	299.9
52 0	300.5	20	300.2	40	300.1	23 0	300.0	20	299.9
10	300.5	30	300.3	50	300.1	10	300.0	30	299.9
20	300.5	40	300.0	13 0	300.1	20	300.1	40	299.9
30	300.4	50	300.0	10	300.0	30	300.1	50	299.9
40	300.4	3 0	300.0	20	300.1	40	300.1	34 0	299.9
50	300.5	10	300.0	30	300.1	50	300.1	10	299.9
53 0	300.5	20	300.0	40	300.1	24 0	300.1	20	299.9
10	300.5	30	300.0	50	300.1	10	300.1	30	299.9
20	300.5	40	299.9	14 0	300.1	20	300 1	40	299.9
30	300.4	50	299.9	10	300.1	30	300.1	50	299.9
40	300.5	4 0	299.9	20	300.1	40	300.1	35 0	299.9
50	300.5	10	299.9	30	300.1	50	300 0	10	299.9
54 0	300.4	20	300.0	40	300.1	25 0	300.1	20	300.0
10	300.5	30	299.9	50	300.1	10	300.0	30	300.0
20	300.5	40	300.0	15 0	300.0	20	300.0	40	300.0
30	300.4	50	300.0	10	300.1	30	300 0	50	299.9
40	300.4	5 0	299.9	20	300.1	40	300.1	36 0	300.0
50	300.4	10	300.0	30	300.0	50	300.1	10	300.0
55 0	300.4	20	299.9	40	300.0	26 0	300.1	20	300.0
10	300.5	30	300.0	50	300.0	10	300.1	30	300.0

AUGUST 1, 1850—Continued.

Chronometer time.	Unifilar scale.	Chronometer time.	Unifilar scale.	Chronometer time.	Unifilar scale.	Chronometer time.	Unifilar scale.	Chronometer time.	Unifilar scale.
h. m. s.	Div.	h. m. s.	Div.	h. m. s.	Div.	h. m. s.	Div.	h. m. s.	Div.
6 36 40	300.0	6 38 30	299.9	6 40 10	300.0	6 41 50	299.9	6 43 30	300.0
50	300.0	40	300.0	20	300.0	42 0	299.9	40	300.0
37 0	300.0	50	300.0	30	300.0	10	300.0	50	300.0
10	300.0	39 0	300.0	40	300.0	20	300.0	44 0	300.0
20	300.0	10	300.0	50	300.0	30	300.0	10	300.0
30	300.0	20	300.0	41 0	299.9	40	300.0	20	299.9
40	300.0	30	300.0	10	299.9	50	300.0	30	299.9
50	300.0	40	300.0	20	299.9	43 0	300.0	40	299.9
38 0	300.0	50	300.0	30	299.9	10	300.0	50	299.9
10	300.0	40 0	300.0	40	299.9	20	300.0	45 0	299.9
20	300.0								

1 scale division . . . . . = 1.00696

Value of $\frac{H}{F}$ . . . . . = 0.000198

T' . . . . = 3s.02957 u . . . . = 7° 47′ 00″ r . . . . = 1.0 *ft.*

δ' . . . . = 63°.5 i . . . . = 64°.0 Deflector west; north pole east.

The observations were commenced at 18h. 5m. 0s. Göttingen mean time, and terminated at 19h. 5m. 0s.

SEPTEMBER 2, 1850.

Chronometer time.	Unifilar scale.	Chronometer time.	Unifilar scale.	Chronometer time.	Unifilar scale.	Chronometer time.	Unifilar scale.	Chronometer time.	Unifilar scale.
h. m. s.	Div.	h. m. s.	Div.	h. m. s.	Div.	h. m. s.	Div.	h. m. s.	Div.
5 56 30	301.0	6 1 30	301.9	6 6 30	302.0	6 11 30	301.8	6 16 30	301.5
40	301.0	40	301.9	40	302.0	40	301.8	40	301 5
50	301.0	50	301.9	50	301.9	50	301.8	50	301.5
57 0	301.0	2 0	301.9	7 0	301.9	12 0	301.8	17 0	301.5
10	301.0	10	301.9	10	301.9	10	301.8	10	301.5
20	301.0	20	302.0	20	301.9	20	301.8	20	301.5
30	301.0	30	302.0	30	301.9	30	301.8	30	301.5
40	301.0	40	302.0	40	301.9	40	301.8	40	301.5
50	301.5	50	302.0	50	301.9	50	301.8	50	301.5
58 0	301.5	3 0	302.0	8 0	301.9	13 0	301.8	18 0	301.8
10	301.5	10	302.0	10	301.9	10	301.5	10	301.8
20	301.5	20	302.0	20	301.9	20	301.5	20	301.8
30	301.5	30	302.0	30	301.9	30	301.5	30	301.8
40	301.5	40	302.0	40	301.9	40	301.5	40	301.8
50	301.5	50	302.0	50	301.9	50	301.5	50	301.8
59 0	301.5	4 0	302.0	9 0	301.9	14 0	301.5	19 0	301.8
10	301.5	10	302.0	10	301.9	10	301.5	10	301.8
20	301.5	20	302.0	20	301.9	20	301.5	20	301.8
30	301.5	30	302.0	30	301.9	30	301.5	30	301.8
40	301.5	40	302.0	40	301.9	40	301.5	40	301.8
50	301.5	50	302.0	50	301 9	50	301.5	50	301.8
6 0 0	301.5	5 0	302.0	10 0	301.9	15 0	301.5	20 0	301.8
10	301.5	10	302.0	10	301.8	10	301.5	10	301 8
20	301.5	20	302.0	20	301.8	20	301.5	20	301.8
30	301.7	30	302.0	30	301.8	30	301.5	30	301.8
40	301.7	40	302.0	40	301.8	40	301.5	40	301.8
50	301.7	50	302.0	50	301.8	50	301.5	50	301.8
1 0	301.7	6 0	302.0	11 0	301.8	16 0	301.5	21 0	301.8
10	301.7	10	302.0	10	301.8	10	301.5	10	301.8
20	301·7	20	302.0	20	301.8	20	301.5	20	301.8

SEPTEMBER 2, 1850—Continued.

Chronometer time.	Unifilar scale.	Chronometer time.	Unifilar scale.	Chronometer time.	Unifilar scale.	Chronometer time.	Unifilar scale.	Chronometer time.	Unifilar scale.
h. m. s.	Div.	h. m. s.	Div.	h. m. s.	Div.	h. m. s.	Div.	h. m. s.	Div.
6 21 30	301.8	6 29 20	301.9	6 37 0	302.2	6 44 40	302.5	6 52 20	302.8
40	301.8	30	301.9	10	302.2	50	302.5	30	303.0
50	301.8	40	301.9	20	302.2	45 0	302.5	40	303.0
22 0	301.8	50	301.9	30	302.2	10	302.5	50	303.0
10	301.8	30 0	301.9	40	302.2	20	302 5	53 0	303.0
20	301.8	10	301.9	50	302.2	30	302.5	10	303.0
30	301 8	20	302.0	38 0	302.2	40	302.5	20	303.0
40	301.8	30	302.0	10	302.2	50	302.5	30	303.0
50	301 8	40	302.0	20	302.2	46 0	302.5	40	303.0
23 0	301.9	50	302.0	30	302.2	10	302.5	50	303.0
10	301.9	31 0	302.0	40	302.2	20	302.5	54 0	303.0
20	301.9	10	302.0	50	302.2	30	302.5	10	303.0
30	301.9	20	302.0	39 0	302.2	40	302.5	20	303.0
40	301.9	30	302.0	10	302.2	50	302.5	30	303.0
50	301.9	40	302.0	20	302.2	47 0	302.5	40	303.0
24 0	301.9	50	302.0	30	302.2	10	302.5	50	303.0
10	301.9	32 0	302.0	40	302.2	20	302.5	55 0	303.0
20	301.9	10	302.0	50	302.2	30	302.5	10	303.0
30	301.9	20	302.0	40 0	302.2	40	302.5	20	303.0
40	301.9	30	302.0	10	302.2	50	302.5	30	303.0
50	301.9	40	302 0	20	302.2	48 0	302.5	40	303.0
25 0	301.9	50	302.0	30	302.2	10	302.7	50	303.0
10	301.9	33 0	302.0	40	302.2	20	302.7	56 0	303.0
20	301.9	10	302.0	50	302.2	30	302.7	10	303.0
30	301.9	20	302.0	41 0	302.2	40	302.7	20	303.0
40	301.9	30	302.0	10	302.2	50	302.7	30	303.0
50	301.9	40	302.0	20	302.2	49 0	302.7	40	302.8
26 0	301.9	50	302.0	30	302.2	10	302.7	50	302.8
10	301.9	34 0	302.0	40	302.2	20	302.7	57 0	302.8
20	301.9	10	302.0	50	302.2	30	302.7	10	302.8
30	301.9	20	302 2	42 0	302.2	40	302.7	20	302.8
40	301.9	30	302.2	10	302.2	50	302.7	30	302.8
50	301.9	40	302.2	20	302.2	50 0	302.7	40	302.8
27 0	301.9	50	302.2	30	302.2	10	302.7	50	302.8
10	301.9	35 0	302.2	40	302.2	20	302.7	58 0	302.8
20	301.9	10	302.2	50	302.5	30	302.8	10	302.8
30	301.9	20	302.2	43 0	302.5	40	302.8	20	302.8
40	301.9	30	302.2	10	302.5	50	302.8	30	302.8
50	301.9	40	302.2	20	302.5	51 0	302.8	40	302.8
28 0	301.9	50	302.2	30	302.5	10	302.8	50	302.8
10	301.9	36 0	302.2	40	302.5	20	302.8	59 0	302.8
20	301.9	10	302.2	50	302.5	30	302.8	10	302.8
30	301.9	20	302.2	44 0	302.5	40	302.8	20	302.8
40	301.9	30	302.2	10	302.5	50	302.8	30	302 8
50	301.9	40	302 2	20	302.5	52 0	302.8	40	302.8
29 0	301.9	50	302.2	30	302.5	10	302.8	50	302.8
10	301.9								

1 scale division . . . . . $= 1.00896'$

Value of $\frac{H}{F}$ . . . . . $= 0.000197$

T' . . . . $= 3s.03373$ $\quad$ u . . . . $= 7° 45' 50''$ $\quad$ r . . . . $= 1.0$ ft.

θ' . . . . $= 66°.6$ $\quad$ t . . . . $= 67°.0$ $\quad$ Deflector east; north pole west.

Chronometer fast of Greenwich mean time at 0h. 00m. Santiago, 22m. 46s.83, gaining daily 4s.25.

DECEMBER 2, 1850.

Chronometer time.	Unifilar scale.	Chronometer time.	Unifilar scale.	Chronometer time.	Unifilar scale.	Chronometer time.	Unifilar scale.	Chronometer time.	Unifilar scale.
h. m. s.	Div.	h. m. s.	Div.	h. m. s.	Div.	h. m. s.	Div.	h. m. s.	Div.
5 55 0	300.1	6 6 20	300.0	6 17 20	299.8	6 28 20	299.7	6 39 20	299.7
20	300.1	40	299.9	40	299.9	40	299.6	40	299.8
40	300.1	7 0	299.9	18 0	299.9	29 0	299.7	40 0	299.7
56 0	300.1	20	299.9	20	299.8	20	299.7	20	299.8
20	300.2	40	299.9	40	299.9	40	299.7	40	299.9
40	300.2	8 0	299.9	19 0	299.9	30 0	299.7	41 0	299.9
57 0	300.2	20	299.9	20	299.8	20	299.6	20	299.9
20	300.2	40	299.9	40	299.9	40	299.6	40	299.9
40	300.2	9 0	299.9	20 0	300.0	31 0	299.6	42 0	299.9
58 0	300.2	20	299.9	20	299.9	20	299.6	20	300.0
20	300.2	40	299.9	40	299.9	40	299.6	40	300.0
40	300.2	10 0	299.9	21 0	299.9	32 0	299.5	43 0	300.0
59 0	300.2	20	299.8	20	300.0	20	299.6	20	300.0
20	300.2	40	299.9	40	300.0	40	299.5	40	300.0
40	300.3	11 0	299.8	22 0	300.0	33 0	299.5	44 0	299.9
6 0 0	300.2	20	299 8	20	299.9	20	299.5	20	299.9
20	300 2	40	299 8	40	299.9	40	299.5	40	299.9
40	300.2	12 0	299 8	23 0	300.0	34 0	299.5	45 0	299.9
1 0	300.2	20	299.7	20	299.9	20	299.5	20	299.9
20	300 2	40	299.7	40	299.9	40	299.4	40	299.9
40	300.3	13 0	299.8	24 0	299.9	35 0	299.5	46 0	299.9
2 0	300.2	20	299.7	20	299.9	20	299.5	20	299.9
20	300.3	40	299.7	40	299.9	40	299.4	40	299.8
40	300.2	14 0	299.7	25 0	299.8	36 0	299.4	47 0	299.9
3 0	300.2	20	299.7	20	299.9	20	299.4	20	299.9
20	300.2	40	299.8	40	299.9	40	299.5	40	300.0
40	300.2	15 0	299.8	26 0	299.9	37 0	299.5	48 0	300.0
4 0	300.1	20	299.8	20	299.9	20	299.5	20	300.0
20	300.1	40	299.8	40	299.7	40	299.6	40	299.9
40	300.0	16 0	299.8	27 0	299.7	38 0	299.7	49 0	300.0
5 0	300.0	20	299.8	20	299.7	20	299.7	20	300.0
20	300.0	40	299.9	40	299.7	40	299.7	40	300.0
40	300.0	17 0	299.9	28 0	299.7	39 0	299.7	50 0	300.0
6 0	299.9								

1 scale division . . . . . = 1.00696

Value of $\frac{H}{F}$ . . . . . = 0.000150

T′ . . . . = 3s.044476 | u . . . . = 7° 43′ 23″ | r . . . . = 1.0 ft.

t′ . . . . = 70°.6 | t . . . . = 70°.8 | Deflector west; north pole east.

There was a fresh breeze blowing, which occasionally agitated the suspended magnet.

Chronometer fast of Greenwich mean time at 0h. 0s. Santiago, 29m. 43s.62; gaining daily 4s.895.

OBSERVATIONS OF THE ABSOLUTE HORIZONTAL FORCE.

FEBRUARY 11, 1850.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 41 20.7					6 51 44.2				
32.7	0 12.0	4	84.5	283	56.2	0 12.0	4	86.5	278
44.8	12.1	4			52 8.2	12.0	4		
56.8	12.0	4			20.2	12.0	4		
42 9.0	12.2	4			32.2	12.0	4		
21.0	12.0	4			44.2	12.0	4		
33.0	12.0	4			56.2	12.0	4		
44 21.0	1 48.0	36			54 44.8	1 48.6	36		
47 22.0	3 1.0	60			57 45.5	3 0.7	60		
50 22.7	3 0.7	60			7 0 46.5	3 1.0	60		
53 23.2	3 0.5	60			3 47.3	3 0.8	60		
56 24.0	3 0.8	60			6 48.5	3 1.2	60		
36.2	12.2	4			7 0.5	12.0	4		
48.0	11.8	4			12.5	12.0	4		
57 0.2	12.2	4			24.5	12.0	4		
12.3	12.1	4			36.5	12.0	4		
24.5	12.2	4			48.7	12.2	4		
36.5	12.0	4	85.5	194	8 0.7	12.0	4	86.0	198

Chronometer at 0h. mean time Santiago, + 7m. 49s.16, gaining daily 4s.32.

Scale reading for torsion.

Circle 90° E. . . . . 330.2 Circle 0° . . . . . 397.6 Circle 90° W. 395.1

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	30 38 40	14 58 10	26 23 0	19 14 50	19 13 40	26 22 20	14 55 50	30 40 30
B	38 30	58 30	22 40	14 50	13 30	22 0	56 0	40 0
C	38 40	57 20	22 0	14 0	12 50	21 40	55 0	40 0
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	6 20	6 27	6 1	6 11	5 56	5 50	5 45	5 35
	°	°	°	°	°	°	°	°
Temperature	88.0	88.5	88.0	88.5	88.0	87.0	87.0	87.0

Remarks.

The error of the chronometer is given for 0h. mean time at Santiago according to astronomical computation, and the same hereafter.

FEBRUARY 22, 1850.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 37 10.0					6 42 35.5				
22.0	12.0	4	80.0	115.0	47.5	12.0	4	84.0	114.0
34.0	12.0	4			59.5	12 0	4		
46.3	12.3	4			43 11.6	12.1	4		
58.4	12.1	4			23.7	12.1	4		
38 10.5	12.1	4			35.7	12 0	4		
22 5	12.0	4			47.7	12 0	4		
40 11.0	1 48.5	36			45 36.4	1 48.7	36		
43 11.5	3 0.5	60			48 37 3	3 0.9	60		
46 12.2	3 0.7	60			51 38.4	3 1.1	60		
49 12.7	3 0.5	60			54 39.2	3 0.8	60		
52 13.2	3 0.5	60			57 40.0	3 0.8	60		
25 4	12.2	4			52.2	12.2	4		
37.4	12.0	4			58 4.3	12.1	4		
49.5	12.1	4			16.3	12.0	4		
53 1.5	12.0	4			28.4	12.1	4		
13.5	12.0	4			40.4	12.0	4		
25.5	12.0	4			52 5	12.1	4		
37.5	12.0	4	81.0	53.0	59 4.5	12.0	4	83.0	56 0

Chronometer at 0h. mean time Santiago, + 8m. 38s.61, gaining daily 4s.48.

Scale reading for torsion.

Circle 90° E. . . . . 305.4 Circle 0° . . . . . 302.8 Circle 90° W. 299.4

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	35 0 30	19 17 40	30 42 20	23 36 50	23 36 40	30 45 0	19 20 0	35 3 0
B	1 20	17 30	42 20	36 30	36 30	44 50	20 0	2 10
C	0 30	17 10	41 30	36 20	36 0	44 30	19 50	3 0
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	6 15	6 10	6 4	5 56	5 52	5 45	5 40	5 33
	°	°	°	°	°	°	°	°
Temperature	84.0	84.0	84.0	84.0	83.0	83 0	83 0	83.0

MARCH 1, 1850.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 2 35.5					6 0 25.5				
47.5	12.0	4	77.0	81,0	37.5	12.0	4	78.0	201.0
59.6	12.1	4			49.5	12.0	4		
3 11.6	12.0	4			1 1.7	12.2	4		

MARCH 1, 1850—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 3 23.7	12.1	4			6 1 13.7	12.0	4		
36.0	12.3	4			25.7	12.0	4		
48.0	12.0	4			37.7	12.0	4		
5 36.5	1 48.5	36			3 26.6	1 48.9	36		
8 37.8	3 1.3	60			6 27.7	3 1.1	60		
11 38.6	3 0.8	60			9 28.7	3 1.0	60		
14 39 8	3 1.2	60			12 30.0	3 1.3	60		
17 40.8	3 1.0	60			15 31.2	3 1.2	60		
52 8	12.0	4			43.3	12.1	4		
18 5 0	12.2	4			55.5	12.2	4		
17.0	12.0	4			16 7.5	12.0	4		
29.0	12.0	4			19.5	12.0	4		
41.3	12.3	4			31.5	12.0	4		
53.3	12.0	4			43.7	12.2	4		
19 17.5	24.2	8	78.0	42.0	55.7	12.0	4	78.0	98.0

Chronometer at 0h. mean time Santiago + 9m. 8s.84, gaining daily 4s.32.

Scale reading for torsion.

Circle 90° E. . . . . 308.4 Circle 0° . . . . . 305.7 Circle 90° W. 303.0

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	114 27 20	98 48 20	110 12 0	103 2 40	103 2 0	110 12 20	98 44 30	114 31 30
B	26 50	47 40	11 20	2 20	1 20	11 40	43 50	31 0
C	27 20	48 30	11 30	2 20	1 30	12 10	44 20	31 0
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	6 25	6 17	6 10	6 5	6 0	5 55	5 50	5 40
	°	°	°	°	°	°	°	°
Temperature	78.0	78.0	78.0	78.0	78.0	77.5	77.5	77.5

MARCH 11, 1850.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 49 10.0		°			6 42 10.5				
22.0	12.0	4	71.0	173.0	23.5	12.0	4	69.0	112.0
34.0	12.0	4			34.5	12.0	4		
46.0	12.0	4			46.5	12.0	4		
58.0	12.0	4			58.5	12.0	4		
50 10.0	12.0	4			43 10.5	12.0	4		
22.0	12.0	4			23.5	12 0	4		
52 10.5	1 48.5	36			45 10.8	1 48 3	36		

MARCH 11, 1850—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 55 10.5	3 0.0	60			6 48 11.0	3 0.2	60		
58 10.8	3 0.3	60			51 11.4	3 0 4	60		
5 1 11.2	3 0.4	60			54 11.5	3 0.1	60		
4 11.4	3 0.2	60			57 11.7	3 0.2	60		
23.4	12.0	4			23.7	12.0	4		
35.4	12.0	4			35.7	12.0	4		
47.4	12.0	4			47.7	12 0	4		
59.4	12.0	4			59.8	12.1	4		
5 11 4	12.0	4			58 11 8	12.0	4		
23.4	12.0	4	71.0	79.0	23.8	12.0	4	69.0	56.0

Chronometer at 0h. mean time Santiago, + 9m. 54s.09, gaining daily 4s.52.

Scale reading for torsion.

Circle 90° E. . . . . 292.0 Circle 0° . . . . . 290.0 Circle 90° W. 287.6

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	10 3 0	354 18 40	5 44 40	358 37 20	358 36 30	5 46 0	354 17 30	10 4 30
B	2 30	18 40	44 30	37 0	36 30	46 20	17 40	4 30
C	2 0	19 0	45 0	37 30	36 30	46 20	18 0	4 30
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	6 17	6 10	6 5	5 58	5 52	5 47	5 42	5 35
	°	°	°	°	°	°	°	°
Temperature	71.0	71.0	71.0	71.0	71.0	71.0	71.0	71.0

MARCH 20, 1850.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 40 54.3					6 35 6.0				
41 6.3	12.0	4	79.0	122.0	18.0	12.0	4	83.0	112.0
18.3	12.0	4			32.2	14.2	4		
30.3	12.0	4			42.3	10.1	4		
42.5	12.2	4			54.5	12.2	4		
54.6	12.1	4			36 6.5	12.0	4		
42 6.6	12.0	4			18.5	12.0	4		
43 55.3	1 48.7	36			38 7.2	1 48.7	36		
46 56.0	3 0.7	60			41 8.5	3 1 3	60		
49 57.0	3 1.0	60			44 9.6	3 1.1	60		
52 58.0	3 1.0	60			47 10.7	3 1.1	60		

MARCH 30, 1850—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 55 58.7	3 0.7	60			6 50 12.0	3 1.3	60		
56 10.8	12.1	4			24.2	12 2	4		
23.0	12.2	4			36.2	12.0	4		
35.0	12.0	4			48.3	12.1	4		
47.0	12.0	4			51 0.4	12.1	4		
59.2	12.2	4			12.5	12 1	4		
57 11.2	12.0	4	79.0	53.0	24.5	12.0	4	83.0	57.0

Chronometer at 0h. mean time Santiago, + 10m. 32s.65, gaining daily 4s.26.

Scale reading for torsion.

Circle 90° E. . . . . 315.5 Circle 0° . . . . . 312.6 Circle 90° W. 310.1

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	8 41 40	353 1 30	4 24 40	357 17 0	357 16 50	4 22 10	353 1 30	8 38 30
B	40 30	0 20	24 0	16 20	16 40	22 0	0 0	37 10
C	41 30	1 0	24 40	16 40	16 50	22 20	0 40	37 30
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	6 5	6 0	5 52	5 45	5 39	5 33	5 27	5 20
	°	°	°	°	°	°	°	°
Temperature	83.0	83.0	83.0	82.0	82.0	82.0	80.0	80.0

APRIL 1, 1850.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 50 15.2					6 55 41.1				
27.2	12.0	4	72.5	148 0	53.2	12.1	4	78.0	53.0
39.3	12.1	4			56 5.4	12.2	4		
51.5	12.2	4			17.4	12.0	4		
51 3.6	12.1	4			29.5	12.1	4		
15.6	12.0	4			41.5	12.0	4		
27.7	12.1	4			53.6	12.1	4		
53 16.3	1 48.6	36			58 42.5	1 48.9	36		
56 17.2	3 0 9	60			7 1 43.8	3 1.3	60		
59 18.6	3 1 4	60			4 45.2	3 1.4	60		
6 2 19.8	3 1.2	60			7 46.7	3 1.5	60		
5 21 2	3 1.4	60			10 48.0	3 1.3	60		
33.2	12.0	4			11 0.1	12.1	4		

APRIL 1, 1850—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
6 5 45.2	12.0	4			7 11 12.2	12.1	4		
57.2	12.0	4			24 2	12.0	4		
6 9 4	12.2	4			36.4	12.2	4		
21.6	12.2	4			48.5	12.1	4		
33.7	12.1	4			12 0 5	12.0	4		
45.7	12.0	4	73.0	69.0	12.7	12.2	4	77.0	98.3

Chronometer at 0h. mean time Santiago, + 11m. 25s.67, gaining daily 4s.33.

Scale reading for torsion.

Circle 90° E. . . . . 301.0 Circle 0° . . . . . 298 0 Circle 90° W. 295.6

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	113 12 10	97 24 50	108 55 10	101 42 0	101 43 50	108 52 40	97 27 40	113 6 0
B	13 30	25 20	56 0	42 50	44 30	52 40	28 10	6 40
C	13 10	25 40	56 20	42 50	44 40	52 40	28 40	7 0
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	6 16	6 10	6 4	5 58	5 53	5 48	5 42	5 35
	°	°	°	°	°	°	°	°
Temperature	78.0	78.0	77.0	77.0	76.5	76.5	76.0	76.0

APRIL 11, 1850.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 39 30.4					6 41 32.3				
42.5	12.1	4	70.0	54.0	44.5	12.2	4	72.5	56.0
54.5	12.0	4			56.6	12.1	4		
40 6.5	12.0	4			42 8.6	12.0	4		
18.6	12.1	4			20.7	12.1	4		
30.7	12.1	4			32.7	12.0	4		
42.7	12.0	4			44.7	12.0	4		
42 31.7	1 49.0	36			44 33.7	1 49.0	36		
45 33.4	3 0.7	60			47 35 0	3 1.3	60		
48 33.2	3 0.8	60			50 36.4	3 1.4	60		
51 34.0	3 0.8	60			53 37.7	3 1.3	60		

APRIL 11, 1850—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 54 35.0	3 1.0	60			6 56 39.0	3 1.3	60		
47.0	12.0	4			51.1	12.1	4		
59.0	12.0	4			57 3.2	12.1	4		
55 11.2	12.2	4			15.2	12.0	4		
23.2	12.0	4			27.3	12.1	4		
35.2	12 0	4			39.4	12 1	4		
47.2	12.0	4			51.5	12.1	4		
59.2	12.0	4	70.0	25.0	58 3 6	12.1	4	73.0	27.0

Chronometer at 0h. mean time Santiago, + 12m. 11s.14, gaining daily 4s.55.

Scale reading for torsion.

Circle 90° E. . . . . 301.5 Circle 0° . . . . . 299.3 Circle 90° W. . . . . 296.6.

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	115 17 40	99 37 40	111 0 30	103 54 10	103 53 50	110 59 40	99 36 20	115 15 50
B	18 20	38 0	0 10	54 0	53 40	59 40	36 0	15 50
C	17 20	37 10	59 50	53 40	53 20	59 20	35 40	15 0
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	6 17	6 10	5 58	5 51	5 45	5 38	5 30	5 22
	°	°	°	°	°	°	°	°
Temperature	72.0	72.0	72.5	72.5	72.0	72.0	72.0	71.0

APRIL 24, 1850.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 32 54.5					6 45 51.2				
33 6.5	12.0	4	63.0	13.5	46 3.2	12.0	4	61.0	76.0
18.6	12.1	4			15.3	12.1	4		
30.6	12.0	4			27.4	12.1	4		
42.7	12.1	4			39.4	12.0	4		
54.7	12.0	4			51.4	12.0	4		
34 6.7	12.0	4			47 3.5	12.1	4		
35 55.5	1 48.8	36			48 52.5	1 49.0	36		
38 56.7	3 1.2	60			51 53.5	3 1.0	60		
41 57.8	3 1.1	60			54 54 6	3 1.1	60		
44 58.9	3 1.1	60			57 55.8	3 1.2	60		
48 0.2	3 1.3	60			7 0 57.0	3 1.2	60		

APRIL 24, 1850—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 48 12.2	12.0	4			7 1 9.1	12.1	4		
24.2	12.0	4			21.1	12.0	4		
36.2	12.0	4			33.1	12.0	4		
48.3	12.1	4			45.1	12.0	4		
49 0.4	12.1	4			57.3	12.2	4		
12.4	12.0	4			2 9 4	12.1	4		
24.5	12.1	4	63.0	79.0	21.5	12 1	4	61.0	42.0

Chronometer at 0h. mean time Santiago, + 13m. 39s.84, gaining daily 4s.30.

Scale reading for torsion.

Circle 90° E. . . . . 313.0 Circle 0° . . . . . 312.8 Circle 90° W. 312.7

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	7 22 0	351 36 40	3 10 10	355 54 40	355 55 40	3 2 0	351 38 40	7 18 0
B	22 0	37 0	10 20	54 40	55 40	2 30	39 0	18 0
C	21 20	36 30	9 50	54 30	55 20	1 30	38 40	17 50
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	6 19	6 13	6 7	6 1	5 55	5 50	5 45	5 40
	°	°	°	°	°	°	°	°
Temperature	62.5	62.5	62.5	62.5	63.0	63.0	62.5	62.5

Remarks.

Changed the suspension thread of the vibrating bar. Since last measures, the longitude has been re-determined by occultations.

MAY 1, 1850.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 5 48.7					7 10 11.5				
6 0.9	12.2	4	70.0	79.0	23.5	12.0	4	71.0	92.0
13.0	12.1	4			35.7	12.2	4		
25.2	12.2	4			47.7	12.0	4		
37.2	12.0	4			59.8	12.1	4		
49.2	12.0	4			11 12.0	12.2	4		
7 1.3	12.1	4			24.0	12.0	4		
8 50.2	1 48.9	36			13 12.7	1 48.7	36		

MAY 1, 1850—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 11 51.4	3 1.2	60			7 16 14.2	3 1.5	60		
14 52.6	3 1.2	60			19 15.5	3 1.3	60		
17 53.8	3 1.2	60			22 16.7	3 1.2	60		
20 54.8	3 1.0	60			25 18.0	3 1.3	60		
21 6 8	12.0	4			30.2	12.2	4		
19.1	12.3	4			42.3	12.1	4		
31.2	12.1	4			54.4	12.1	4		
43.2	12.0	4			26 6.4	12.0	4		
55.3	12.1	4			18.5	12.1	4		
22 7.3	12.0	4			30.5	12.0	4		
19.4	12.1	4	70.0	32.0	42.6	12.1	4	70.7	47.0

Chronometer at 0h. mean time Santiago, + 14m. 13s.57, gaining daily 4s.82.

Scale reading for torsion.

Circle 90° E. . . . . 308.25 Circle 0° . . . . . 306.75 Circle 90° W. 305.25

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	7 22 30	351 44 40	3 6 50	356 0 30	356 0 50	3 6 10	351 44 50	7 20 50
B	23 10	45 20	7 20	1 0	1 20	6 30	45 40	21 30
C	23 10	45 20	7 30	1 0	1 30	7 0	45 30	21 40
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	6 40	6 34	6 27	6 21	6 14	6 1	5 55	5 49
	°	°	°	°	°	°	°	°
Temperature	72.0	72.0	72.0	72.0	74.0	74.0	74.0	74.0

MAY 11, 1850.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 13 55.4					6 51 23.5				
14 7.5	12.1	4	66.5	142.0	35.7	12.2	4	66.5	78.0
19.7	12.2	4			47.7	12.0	4		
31.7	12.0	4			59.8	12.1	4		
43.7	12.0	4			52 11.8	12.0	4		
56.0	12.3	4			24 0	12.2	4		
15 8.0	12.0	4			36.1	12.1	4		
16 57.0	1 49.0	36			54 25.0	1 48.9	36		
19 58.5	3 1.5	60			57 26.3	3 1.3	60		

MAY 11, 1850—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 23 0.2	3 1.7	60			7 0 27.7	3 1.4	60		
26 1.6	3 1.4	60	. . .	97.0	3 29.2	3 1.5	60	. . .	48.0
29 3.3	3 1.7	60			6 30.7	3 1.5	60		
15.3	12.0	4			43 0	12.3	4		
27.4	12.1	4			55.2	12.2	4		
39.5	12.1	4			7 7.3	12.1	4		
51.5	12.0	4			19.3	12.0	4		
30 3.7	12.2	4			31 3	12.0	4		
15.7	12.0	4			43.4	12.1	4		
28.0	12.3	4	67.0	75.5	55.4	12 0	4	66.5	44.0

Chronometer at 0h. mean time Santiago, + 14m. 53s.01, gaining daily 3s.94.

Scale reading for torsion.

Circle 90° E. . . . . 301.5 Circle 0° . . . . . 300.0 Circle 90° W. 299.5

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	87 9 0	71 29 50	82 51 50	75 45 20	75 45 50	82 52 40	71 28 40	87 11 10
B	9 0	29 30	51 50	45 20	46 0	52 30	28 10	10 30
C	8 50	29 30	52 10	45 50	46 10	52 40	28 20	11 20
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	6 33	6 27	6 20	6 15	6 10	6 6	5 59	5 54
	°	°	°	°	°	°	°	°
Temperature	66.0	66.0	66.5	66.5	67.0	67.0	67.0	67.0

Remarks.

Changed the suspension threads of the bars. Weather cloudy.

MAY 24, 1850.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 56 16.3					7 3 44.2				
28.3	12.0	4	62.0	77.0	56.3	12.1	4	69.0	92.0
40.4	12.1	4			4 8.4	12.1	4		
52.6	12.2	4			20.5	12.1	4		
57 4.6	12.0	4			32.7	12.2	4		
16.7	12.1	4			44.7	12.0	4		
28.8	12.1	4			56.9	12.2	4		
59 17.8	1 49.0	36			6 46.0	1 49.1	36		
5 2 19.5	3 1.7	60			9 48.2	3 2.2	60		

MAY 24, 1850—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 5 20.7	3 1.2	60			7 12 50.0	3 1.8	60		
8 22.3	3 1.6	60			15 52.0	3 2.0	60		
11 23.6	3 1.3	60			18 54.0	3 2.0	60		
35.8	12.2	4			19 6.1	12.1	4		
48.0	12.2	4			18.3	12.2	4		
12 0.1	12.1	4			30.4	12.1	4		
12 2	12.1	4			42.4	12.0	4		
24.2	12 0	4			54.6	12.2	4		
36 3	12.1	4			20 6.7	12.1	4		
48.4	12 1	4	62.5	65.0	18.8	12.1	4	68.0	53.5

Chronometer at 0h. mean time Santiago, + 15m. 43s.87, gaining daily 3s.91.

Scale reading for torsion.

Circle 90° E. . . . . 300.75 Circle 0° . . . . . 300.25 Circle 90° W. 299.35

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	73 27 0	57 46 40	69 10 50	62 3 30	62 4 50	69 9 20	57 50 20	73 24 10
B	27 0	46 40	10 50	3 30	4 50	9 50	50 0	25 10
C	26 30	46 10	10 10	3 0	3 50	8 50	50 0	24 0
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	6 44	6 35	6 17	6 10	6 4	5 51	5 40	5 31
	°	°	°	°	°	°	°	°
Temperature	68.5	68.0	69.0	70.0	70.0	71.0	69.0	68.0

Remarks.

Not well sheltered from the sun.

JUNE 1, 1850.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 0 37.5					6 42 24.2				
49.7	12.2	4	51.0	116.5	36.3	12.1	4	50.0	110.0
1 1.7	12.0	4			48.3	12.0	4		
13.8	12.1	4			43 0 4	12.1	4		
25.8	12.0	4			12.5	12.1	4		
37.9	12.1	4			24.7	12.2	4		
50.0	12 1	4			35.7	12.0	4		
3 38.7	1 48 7	36			45 25.4	1 48.7	36		
6 40.1	3 1.4	60	. .	86 0	48 26.6	3 1.2	60		

JUNE 1, 1850—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 9 41.3	3 1.2	60			6 51 27.7	3 1.1	60		
12 42.5	3 1.2	60			54 29.0	3 1 3	60		
15 43.7	3 1.2	60			57 30.2	3 1.2	60		
55.8	12.1	4			42.3	12.1	4		
16 7.9	12.1	4			54.4	12.1	4		
20.0	12.1	4			58 6.4	12.0	4		
32.0	12.0	4			18.5	12.1	4		
44.3	12.3	4			30.6	12.1	4		
56.3	12.0	4			42.7	12.1	4		
17 8.4	12.1	4	51.0	56.0	54.7	12.0	4	50.0	56.0

Chronometer at 0h. mean time Santiago, + 16m. 13s.70, gaining daily 4s 26.

Scale reading for torsion.

Circle 90° E. . . . . 303.5 Circle 0° . . . . . 300.0 Circle 90° W. 297.2

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	91 45 40	76 3 50	87 28 40	80 20 10	80 20 30	87 27 40	76 5 20	91 43 30
B	45 20	3 40	27 40	19 50	20 0	26 50	4 40	43 10
C	46 0	3 50	28 20	20 0	20 30	27 30	5 0	43 20
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	6 19	6 13	6 5	6 0	5 53	5 48	5 43	5 37
	°	°	°	°	°	°	°	°
Temperature	50.0	50.0	50.3	50.3	50.5	50.5	51.0	51.0

Remarks.

A new suspension thread to the deflecting magnet. Weather cloudy.

JUNE 11, 1850.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 42 45.3					6 27 36.5				
57.4	12.1	4	57.0	115.0	48.6	12.1	4	60.0	113.0
43 9.4	12.0	4			28 0.8	12.2	4		
21.5	12.1	4			12.9	12.1	4		
33.6	12.1	4			25 1	12.2	4		
45.7	12.1	4			37.3	12.2	4		
57.7	12.0	4			49.4	12.1	4	. .	101.0
45 46.6	1 48.9	36			30 38.3	1 48.9	36		
48 48.0	3 1.4	60	. .	88.0	33 40.1	3 1.8	60		

JUNE 11, 1850—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 51 49.4	3 1.4	60			6 36 41.7	3 1.6	60		
54 50.7	3 1.3	60			39 43.3	3 1.6	60		
57 52.1	3 1.4	60			42 45.2	3 1.9	60		
58 4 1	12.0	4			57.3	12.1	4		
16.2	12 1	4			43 9.3	12.0	4		
28.2	12.0	4			21.4	12.1	4		
40.4	12.2	4			33.5	12.1	4		
52.4	12.0	4			45.6	12.1	4		
59 4.5	12.1	4			57.7	12.1	4		
16.6	12.1	4	57.0	61.0	44 9.8	12.1	4	61.0	55.0

Chronometer at 0h. mean time Santiago, + 16*m*. 57*s*.00, gaining daily 3*s*.66.

Scale reading for torsion.

Circle 90° E. . . . . 301.3 Circle 0° . . . . . 297.7 Circle 90° W. 294.2

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	17 11 10	1 31 30	12 54 30	5 48 0	5 48 20	12 53 50	1 34 0	17 8 30
B	11 30	32 20	55 10	48 50	49 10	54 30	34 40	9 0
C	11 30	32 10	55 0	48 50	49 0	54 30	34 40	9 0
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	6 5	5 59	5 55	5 49	5 43	5 37	5 30	5 24
	°	°	°	°	°	°	°	°
Temperature	59.7	59.7	59.0	59.0	58.0	58.0	57.5	57 5

Remarks.

Changed position about 100 yards northwest of the usual one.

JUNE 19, 1850.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 51 3.5					6 35 4.7				
15.3	11.8	4	58.0	200.0	16.8	12.1	4	58.3	120.5
27.3	12.0	4			28.8	12.0	4		
39.2	11.9	4			40.9	12.1	4		
51.1	11.9	4			53.2	12.3	4		
52 2.8	11.7	4			36 5.3	12.1	4		
14.5	11 7	4	. .	120.0	17.4	12.1	4		
54 1.8	1 47.3	36			38 6.3	1 48.9	36		
56 59.8	2 58.0	59	. .	45.0	41 8.0	3 1.7	60		
59 57.7	2 57.9	59			44 9.7	3 1.7	60		

JUNE 19, 1850—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 2 55.5	2 57.8	59	. .	16.0	6 47 11.4	3 1.7	60		
5 53.3	2 57.8	59			50 12.8	3 1.4	60		
6 5.0	11.7	4			25.0	12.2	4		
17 0	12.0	4			37.0	12.0	4		
28.9	11.9	4			49.3	12.3	4		
40.7	11.9	4			51 1.6	12.3	4		
52.6	11.9	4			13.6	12.0	4		
7 4.5	11.9	4			25.6	12.0	4		
16.3	11.8	4	58.0	6.5	37.7	12.1	4	58.3	61.0

Chronometer at 0h. mean time Santiago, + 17m. 33s.29, gaining daily 4s.14.

Scale reading for torsion.

Circle 90° E. . . . . 305.5 Circle 0° . . . . . 305.0 Circle 90° W. 303.87

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	214 23 0	198 48 20	210 8 0	203 2 50	203 2 30	210 9 50	198 50 0	214 25 40
B	23 40	48 40	8 30	3 30	3 10	10 30	50 20	26 0
C	24 0	49 0	8 50	3 30	3 30	10 10	50 10	26 20
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	6 17	6 11	6 3	5 56	5 48	5 42	5 37	5 30
	°	°	°	°	°	°	°	°
Temperature	58.5	58.5	58.0	58.0	58.0	58.0	58.0	58.0

Remarks.

The first series of vibrations is not good, because the end of the suspension thread laid against the box and impeded the vibrations. The suspension thread was single. Weather cloudy.

JULY 1, 1850.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
6 1 51.7					6 57 54.5				
2 3.8	12.1	4	52.7	65.0	58 6.7	12.2	4	53.0	125.0
16.0	12.2	4			18.7	12.0	4		
28.1	12.1	4			30.9	12.2	4		
40.3	12.2	4			43.1	12.2	4		
52.4	12.1	4			55.2	12.1	4		
3 4.6	12.2	4			59 7.4	12.2	4		
4 53.7	1 49.1	36			7 0 56.7	1 49.3	36		
7 55.8	3 2.1	60			3 58.7	3 2.0	60		

JULY 1, 1850—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
6 10 57.7	3 2.1	60			7 7 1.0	3 2.3	60		
13 59.8	3 2.1	60			10 3.2	3 2.2	60		
17 1.7	3 1.9	60			13 5.3	3 2.1	60		
13.9	12.2	4			17.4	12.1	4		
26.1	12.2	4			29.6	12.2	4		
38.2	12.1	4			41.6	12.0	4		
50.3	12.1	4			53.7	12.1	4		
18 2.5	12.2	4			14 5.8	12.1	4		
14.7	12.2	4			18.0	12.2	4		
26.7	12.0	4	52.7	34.0	30.3	12.3	4	53.0	58.0

Sidereal chronometer at 0h. mean time Santiago, + 1h. 55*m*. 34*s*.67, gaining hourly on mean time 9*s*.8207.

Scale reading for torsion.

Circle 90° E. . . . . 306 Circle 0° . . . . . 305 Circle 90° W. . . . 304.25

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR WEST.				DEFLECTOR EAST.			
	One foot.		One foot and fifteen-hundredths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	. .	. .	254 51 10	244 37 20	244 37 50	254 51 10		
B	. .	. .	51 30	37 40	38 20	51 40		
C	. .	. .	51 30	37 50	38 20	51 30		
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	. .	. .	6 29	6 34	6 39	6 45		
	°	°	°	°	°	°	°	°
Temperature	. .	. .	52.5	52.5	53.0	53.0		

Remarks.

For want of time the double set could not be taken, therefore a single set (of deflections) at the mean distance was made. Weather cloudy.

JULY 11, 1850.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 58 21.2					6 30 37.3				
33.3	12.1	4	58.0	127.0	49 4	12.1	4	58.5	99.0
45.4	12.1	4			31 1.4	12.0	4		
57.5	12.1	4			13.5	12 1	4		
59 9.6	12.1	4			25.7	12.2	4		
21.7	12.1	4			37.8	12.1	4		
33.7	12.0	4			50.0	12.2	4		
5 1 22.6	1 48.9	36			33 38.9	1 48.9	36		
4 24.2	3 1 6	60			36 40.7	3 1.8	60		

JULY 11, 1850—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 7 25.8	3 1.6	60			6 39 42.4	3 1.7	60		
10 27.4	3 1.6	60			42 44.2	3 1.8	60		
13 28.8	3 1.4	60			45 45.8	3 1.6	60		
40.9	12.1	4			58 0	12.2	4		
53 2	12.3	4			46 10.1	12.1	4		
14 17.4	24.2	8			22.2	12.1	4		
29.6	12 2	4			34.3	12.1	4		
41.7	12.1	4			46.4	12.1	4		
53.8	12.1	4			58.6	12.2	4		
15 5.9	12.1	4	58.5	61.0	47 10.6	12.0	4	58.0	38.0

Chronometer at 0h. mean time Santiago, + 18m. 59s.18, gaining daily 3s.62.

Scale reading for torsion.

Circle 90° E. . . . . 301.65 Circle 0° . . . . . 300.75 Circle 90° W. 299.85

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	317 7 50	201 28 30	312 51 0	205 43 50	205 45 10	212 49 50	201 31 0	217 4 0
B	8 20	29 0	51 30	44 20	45 40	50 20	31 40	4 40
C	8 30	29 10	51 40	44 40	45 50	50 30	32 10	5 0
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	6 12	6 5	5 56	5 51	5 46	5 40	5 32	5 26
	°	°	°	°	°	°	°	°
Temperature	59.0	59.0	59.5	59.5	59.5	59.5	59.0	59.0

Remarks.

During the last vibration experiments quite a smart breeze was blowing, which jarred the instrument considerably. Thin clouds.

JULY 24, 1850.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 28 32.2					6 29 29 3				
44.3	12.1	4	48.0	196.0	41.4	12.1	4	50.5	130.0
56 4	12 1	4			53.5	12.1	4		
29 8.5	12.1	4			30 5.6	12.1	4		
20.6	12.1	4			17.8	12 2	4		
32.7	12.1	4			29.8	12.0	4		
44.8	12.1	4			41.9	12.1	4		
31 33.7	1 48 9	36			32 30.7	1 48.8	36		
5 34 35.2	3 1.5	60			35 39.5	3 1.8	60		

JULY 24, 1850—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 37 36.7	3 1.5	60			6 38 34.1	3 1.6	60		
40 37 9	3 1.2	60			41 35.7	3 1 6	60		
43 39.2	3 1.3	60			44 37.4	3 1.7	60		
51.3	12.1	4			49.4	12.0	4		
44 3.4	12.1	4			45 1.6	12.2	4		
15.5	12.1	4			13.7	12.1	4		
27.6	12.1	4			25.7	12 0	4		
39.7	12.1	4			37.8	12.1	4		
51.8	12.1	4			49.9	12.1	4		
45 3.8	12.0	4	48.3	108.0	46 2.0	12.1	4	51.3	68.3

Chronometer at 0h. mean time Santiago, + 19m. 55s.92, gaining daily 4s.36.

Scale reading for torsion.

Circle 90° E . . . . . 302.5 Circle 0° . . . . . 301.0 Circle 90° W 299.5

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	298 47 20	283 10 20	294 31 20	287 25 10	287 25 20	294 30 30	283 10 0	298 45 30
B	47 50	11 0	32 0	26 0	26 10	31 20	10 40	46 10
C	47 50	10 40	32 10	25 50	26 0	31 10	10 30	46 0
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	6 7	6 0	5 52	5.46	5 37	5 31	5 21	5 14
	°	°	°	°	°	°	°	°
Temperature	50.0	50.0	50.0	50.0	49.5	49.5	50.0	50.0

AUGUST 1, 1850.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 0 11.9					8 32 7.2				
24.0	12.1	4	63.0	121.0	19.4	12.2	4	61.0	169.0
36.2	12.2	4			31.5	12.1	4		
48.3	12.1	4			43 6	12.1	4		
1 0.4	12.1	4			55.7	12.1	4		
12.5	12.1	4			33 7.8	12.1	4		
24.7	12 1	4			19.8	12.0	4		
3 13.8	1 49.1	36			35 9.0	1 49 2	36		
6 15.7	3 1.9	60	. .	92.0	38 10 6	3 1.6	60	. .	131 0

AUGUST 1, 1850—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 9 17.4	3 1.7	60			8 41 12.2	3 1.6	60		
12 19.2	3 1.8	60			44 13.8	3 1.6	60		
15 21.2	3 2.0	60			47 15.7	3 1.9	60		
33.3	12.1	4			27.8	12.1	4		
45.4	12.1	4			39.9	12.1	4		
57.6	12.2	4			52.0	12.1	4		
16 9.7	12.1	4			48 4.2	12.2	4		
21.8	12.1	4			16.3	12.1	4		
33.9	12.1	4			28.4	12.1	4		
46.0	12.1	4	64.0	63.0	40.6	12.2	4	60.5	86.0

Chronometer at 0h. mean time Santiago, + 20*m*. 26*s*.47, gaining daily 4*s*.36.

Scale reading for torsion.

Circle 90° E. . . . . 300.0 Circle 0° . . . . . 298.55 Circle 90° W. 297.25

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	108 27 40	92 54 0	104 12 50	97 8 30	97 7 20	104 13 40	92 51 10	108 29 50
B	28 20	54 50	13 20	9 20	8 0	14 30	52 0	30 30
C	28 30	54 40	13 30	9 30	8 0	14 30	52 0	30 30
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	7 48	7 53	7 33	7 40	8 11	8 16	8 0	8 5
	°	°	°	°	°	°	°	°
Temperature	62.0	61.5	62.0	62.0	61.5	61.5	61.5	61.5

Remarks.

In setting up the deflecting apparatus, the thermometer was broken, so that all temperature registers of this day, after the first vibration experiments, are taken from records made at the office.

AUGUST 12, 1850.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 20 38.6					6 26 36.7				
50.7	12.1	4	52.5	193.0	48.8	12.1	4	59.3	160.0
21 2.8	12.1	4			27 0.9	12.1	4		
14.9	12.1	4			13.0	12.1	4		
27.0	12.1	4			25.2	12.2	4		
39.2	12 2	4			37.3	12.1	4		
51.3	12.1	4			49.4	12.1	4		
23 40.2	1 48.9	36			29 38.7	1 49.3	36		
26 41.7	3 1.5	60	. .	140.0	32 40.4	3 1.7	60	. .	122.0

AUGUST 12, 1850—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 29 43.5	3 1.8	60			6 35 42.4	3 2.0	60		
32 45.2	3 1.7	60			38 44.2	3 1.8	60		
35 46.7	3 1.5	60			41 46.2	3 2.0	60		
58.9	12.2	4			58.4	12.2	4		
36 11.0	12.1	4			42 10.5	12.1	4		
23.2	12.2	4			22.6	12.1	4		
35.3	12.1	4			34.7	12.1	4		
47.4	12.1	4			46.8	12.1	4		
59.5	12.1	4			58.9	12.1	4		
37 11.6	12.1	4	52.5	85.0	43 11.2	12.3	4	58.0	81.5

Chronometer at 0h. mean time Santiago, + 21m. 22s.46, gaining daily 3s.33.

Scale reading for torsion.

Circle 90° E. . . . . 300.5 Circle 0° . . . . . 299.0 Circle 90° W. 296.0

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	85 15 20	69 40 0	81 0 50	73 54 50	73 54 40	81 1 0	69 38 0	85 15 40
B	16 40	40 50	1 50	55 40	55 40	1 30	38 40	16 10
C	16 20	40 50	1 30	56 0	55 40	1 30	39 0	16 20
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	6 5	5 56	5 46	5 39	5 30	5 23	5 15	5 8
	°	°	°	°	°	°	°	°
Temperature	58.2	57.0	57.0	56 0	56.5	56.0	55.0	54.7

AUGUST 21, 1850.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 11 12.9					7 8 27.3				
25.1	12.2	4	59.2	12.1	39.4	12.1	4	58.7	156.0
37.3	12.2	4			51.5	12.1	4		
49.4	12.1	4			9 3.7	12.2	4		
12 1.5	12.1	4			15.8	12.1	4		
13.7	12.2	4			27.9	12.1	4		
25.8	12.1	4			40.1	12.2	4		
14 14.7	1 48.9	36			11 29.3	1 49.2	36		
17 16.6	3 1.9	60			14 31.3	3 2.0	60	. .	118.5
20 18.4	3 1.8	60	. .	95.0	17 33.3	3 2.0	60		

AUGUST 21, 1850—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 23 20.3	3 1.9	60			7 20 35.2	3 1.9	60		
26 22.2	3 1.9	60			23 37.2	3 2.0	60		
34.3	12.1	4			49.3	12.1	4		
46.4	12.1	4			24 1.4	12.1	4		
58.5	12.1	4			13.5	12.1	4		
27 10.6	12.1	4			25.6	12.1	4		
22.7	12.1	4			37.7	12.1	4		
34.8	12.1	4			49.8	12.1	4		
46.9	12.1	4	58.7	63.0	25 1.9	12.1	4	58.7	80.0

Chronometer at 0h. mean time Santiago, + 21m. 55s.80, gaining daily 3s.70.

Scale reading for torsion.

Circle 90° E . . . . 299 Circle 0° . . . . . 298 Circle 90° W. 297

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	153 42 50	138 5 50	149 26 50	142 21 10	142 22 10	149 26 0	138 8 40	153 40 40
B	44 0	6 40	28 0	22 0	23 0	27 20	9 30	41 30
C	43 50	6 40	28 0	22 0	23 0	27 10	9 30	41 30
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	6 42	6 37	6 29	6 25	6 16	6 9	6 0	5 54
	°	°	°	°	°	°	°	°
Temperature	59.0	59.0	59.5	59.5	59.5	59.5	60.5	60.5

Remarks.

Used a new suspension fibre for the three-inch magnet. Thin clouds.

AUGUST 30, 1850.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 54 32.8					6 31 24.6				
44.9	12.1	4	61.7	121.2	36.7	12.1	4	63.7	153.0
57.1	12.2	4			48.8	12.1	4		
55 9.2	12.1	4			32 1.0	12.2	4		
21.3	12.1	4			13.2	12.2	4		
33.5	12.2	4			25.3	12.1	4		
45.6	12.1	4			37.4	12.1	4		
57 34.7	1 49.1	36			34 26.7	1 49.3	36		
5 0 36.6	3 1.9	60			37 28.6	3 1.9	60		

AUGUST 30, 1850—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 3 38.7	3 2.1	60	. .	83.5	6 40 30.8	3 2.2	60	. .	104.0
6 40.6	3 1.9	60			43 32.8	3 2.0	60		
9 42.7	3 2.1	60			46 35.0	3 2.2	60		
54.8	12.1	4			47.2	12.2	4		
10 6.9	12.1	4			59.3	12.1	4		
19.0	12.1	4			47 11.4	12.1	4		
31.1	12.1	4			23.5	12.1	4		
43.2	12.1	4			35.7	12.2	4		
55.3	12.1	4			47 8	12.1	4		
11 7.4	12.1	4	62.0	61.0	59.9	12.1	4	62.0	82.0

Chronometer at 0h. mean time Santiago, + 22m. 34s.70, gaining daily 4s.25.

Scale reading for torsion.

Circle 90° E. . . . . 302.0 Circle 0° . . . . . 301.1 Circle 90° W. 300.5

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	186 23 0	170 46 50	182 7 0	175 2 0	175 2 50	182 5 50	170 47 40	186 20 0
B	23 40	47 30	7 40	2 50	3 30	6 40	48 30	20 30
C	24 0	47 50	8 0	2 50	3 40	6 50	48 40	20 30
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	6 15	6 10	6 6	6 1	5 55	5 50	5 44	5 38
	°	°	°	°	°	°	°	°
Temperature	64.3	64.3	64.3	64.3	64.3	64.3	63.5	63.5

OCTOBER 1, 1850.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 32 16.4					6 20 56.2				
28.5	12.1	4	61.5	107.0	21 8.3	12.1	4	63.8	125.0
40.6	12.1	4			20.5	12.2	4		
52.8	12.2	4			32.7	12.2	4		
33 4.9	12.1	4			44.8	12.1	4		
17.0	12.1	4			56.9	12.1	4		
29.2	12.2	4			22 9.1	12.2	4		
35 18.5	1 49.3	36			23 58.6	1 49.5	36		
38 20.8	3 2.3	60			27 1.0	3 2.4	60		

OCTOBER 1, 1850—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 41 22.8	3 2.0	60	. .	83.0	6 30 3.3	3 2.3	60	. .	94.0
44 25.0	3 2.2	60			33 5.7	3 2.4	60		
47 27.3	3 2.3	60			36 8.1	3 2.4	60		
39.6	12.3	4			20.3	12.2	4		
51.6	12.0	4			32.4	12.1	4		
48 3.8	12.2	4			44.5	12.1	4		
15.9	12.1	4			56.6	12.1	4		
28.2	12.3	4			37 8.8	12.2	4		
40.3	12.1	4			20.9	12.1	4		
52.4	12.1	4	64.0	57.0	33.1	12.2	4	63.0	66.0

Chronometer at 0h. mean time Santiago, + 24m. 56s.68, gaining daily 4s.45.

Scale reading for torsion.

Circle 90° E. . . . . 301.60 Circle 0° . . . . . 300.87 Circle 90° W. 300.05

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	243 37 40	228 1 50	239 21 40	232 16 20	232 16 10	239 21 30	228 0 50	243 36 0
B	38 20	2 20	22 20	16 40	16 40	21 50	1 30	36 40
C	38 30	2 30	22 20	16 50	16 40	22 10	1 40	36 40
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	5 53	5 48	5 41	5 37	5 32	5 27	5 21	5 15
	°	°	°	°	°	°	°	°
Temperature	61.5	61.5	61.7	61.7	63.3	63.3	63.0	63.0

OCTOBER 11, 1850.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 8 57.7					6 43 24.5				
9 9.9	12.2	4	66.0	162.0	36.6	12.1	4	63.5	134.0
22.1	12.2	4			48.7	12.1	4		
34.2	12.1	4			44 0.9	12.2	4		
46.3	12.1	4			13.0	12.1	4		
58.4	12.1	4			25.2	12.2	4		
10 10.6	12.2	4			37.4	12.2	4		
11 59.7	1 49.1	36			46 26.5	1 49.1	36		
15 1.8	3 2.1	60			49 28.5	3 2.0	60		
18 3.7	3 1.9	60	. .	118.0	52 30.7	3 2.2	60	. .	102.0

OCTOBER 11, 1850—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 21 5.6	3 1.9	60			6 55 32.7	3 2.0	60		
24 7.6	3 2.0	60			58 34.7	3 2.0	60		
19.9	12.3	4			46.9	12.2	4		
32.0	12.1	4			59.0	12.1	4		
44.2	12.2	4			59 11.2	12.2	4		
56.3	12.1	4			23.4	12.2	4		
25 8.4	12.1	4			35.5	12.1	4		
20.6	12.2	4			47.6	12.1	4		
32.7	12.1	4	65.0	79.0	59.7	12.1	4	62.5	68.3

Chronometer at 0h. mean time Santiago, + 25m. 40s.29, gaining daily 4s.37.

Scale reading for torsion.

Circle 90° E. . . . . 301.66 Circle 0° . . . . . 300.71 Circle 90° W. 299.85

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	78 55 20	63 21 40	74 40 40	67 36 10	67 36 20	74 39 10	63 23 20	78 52 50
B	56 10	22 20	41 20	36 40	36 50	40 0	24 0	53 20
C	56 0	22 30	41 0	37 0	37 0	40 0	24 0	53 10
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	6 25	6 20	6 16	6 11	6 6	6 0	5 55	5 49
	°	°	°	°	°	°	°	°
Temperature	64.3	64.3	64.5	64.5	64.5	64.5	65.0	65.0

Remarks.

Weather windy, with passing cumuli.

OCTOBER 23, 1850.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 49 28.1					6 23 22.5				
40.2	12.1	4	70.0	142.0	34.7	12.2	4	71.5	133.0
52.3	12.1	4			46.8	12.1	4		
50 4.4	12.1	4			59.0	12.2	4		
16.6	12.2	4			24 11.2	12.2	4		
28.7	12.1	4			23.4	12.2	4		
40.9	12.2	4			35.5	12.1	4		
52 30.2	1 49.3	36			26 25.0	1 49.5	36		
55 32.4	3 2.2	60			29 27.3	3 2.3	60		

OCTOBER 23, 1850—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 58 34.8	3 2.4	60	. .	102.7	6 32 29.8	3 2.5	60	. .	102.0
5 1 37.2	3 2.4	60			35 32.2	3 2.4	60		
4 39.5	3 2.3	60			38 34.6	3 2.4	60		
51.6	12.1	4			46.7	12.1	4		
5 3.8	12.2	4			58.9	12.2	4		
15.9	12.1	4			39 11.2	12.3	4		
28.1	12.2	4			23.3	12.1	4		
40.2	12.1	4			35.4	12.1	4		
52.3	12.1	4			47.6	12.2	4		
6 4.4	12.1	4	70.5	74.0	59.7	12.1	4	72.0	69.0

Chronometer at 0h. mean time Santiago, + 26*m*. 32*s*.72, gaining daily 4*s*.37.

Scale reading for torsion.

Circle 90° E. . . . . 303.15 Circle 0° . . . . . 302.42 Circle 90° W. 301.75

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	212 5 20	196 36 0	207 51 30	200 48 50	200 48 30	207 51 0	196 35 20	212 2 50
B	6 0	36 30	52 0	49 40	49 10	51 40	36 10	3 20
C	5 50	36 40	52 0	49 50	49 30	51 50	36 0	3 30
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	6 0	5 55	5 50	5 46	5 41	5 37	5 31	5 25
	°	°	°	°	°	°	°	°
Temperature	71.5	71.5	71.5	71.5	71.5	71.5	71.3	71.3

Remarks.

Between the vibrations, broke the suspension thread of the 3.67 magnet; put in another with like number of fibres. The first set was made with the old thread; the last with the new one.

NOVEMBER 1, 1850.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 5 18.6					8 2 10.8				
30.8	12.2	4	77.0	92.0	23.0	12.2	4	81.0	69.0
42.9	12.1	4			35.3	12.3	4		
55.1	12.2	4			47.5	12.2	4		
6 7.3	12.2	4			59.7	12.2	4		
19.4	12.1	4			3 11.8	12.1	4		
31.6	12.2	4			24.0	12.2	4		
8 21.3	1 49.7	36			5 13.4	1 49.4	36		

NOVEMBER 1, 1850—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 11 23.8	3 2.5	60			8 8 16 3	3 2.9	60		
14 26.6	3 2.8	60	. .	74.0	11 19.1	3 2.8	60	. .	52.0
17 29.2	3 2.6	60			14 21.8	3 2.7	60		
20 31.9	3 2.7	60			17 24.7	3 2.9	60		
44.1	12.2	4			36.9	12.2	4		
56.3	12.2	4			49.1	12.2	4		
21 8.4	12.1	4			18 1.3	12.2	4		
20.7	12.3	4			13.5	12.2	4		
32.8	12.1	4			25.6	12.1	4		
45.0	12.2	4			37.8	12.2	4		
57.2	12.2	4	77.5	50.5	50.0	12.2	4	81.0	33.5

Chronometer at 0h. mean time Santiago, + 27*m*. 15*s*.92, gaining daily 4*s*.80.

Scale reading for torsion.

Circle 90° E. . . . . 296.65 Circle 0° . . . . . 295.75 Circle 90° W. 295.0

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	79 39 0	64 15 40	75 27 30	68 27 10	68 27 10	75 28 30	64 14 0	79 42 30
B	39 40	16 30	27 50	27 50	27 40	29 00	14 30	42 50
C	39 40	16 30	28 10	27 30	27 30	28 40	14 40	42 50
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	7 38	7 35	7 31	7 27	7 23	7 19	7 14	7 10
	°	°	°	°	°	°	°	°
Temperature	81.5	81.5	81.5	81.5	81.2	81.2	81.0	81.0

NOVEMBER 11, 1850.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 53 29.2					6 20 46.0				
41.4	12.2	4	68.0	95.0	58.2	12.2	4	71.5	89.5
53.5	12.1	4			21 10.3	12.1	4		
54 5.7	12.2	4			22.5	12.2	4		
17.8	12.1	4			34.7	12.2	4		
29.9	12.1	4			46.8	12.1	4		
42.1	12.2	4			59.0	12.2	4		
56 31.6	1 49.5	36			23 48.6	1 49.6	36		
59 34.0	3 2.4	60			26 51.2	3 2.6	60		

NOVEMBER 11, 1850—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 2 36.4	3 2.4	60	. .	72.5	6 29 53.7	3 2.5	60	. .	67.5
5 38.7	3 2.3	60			32 56.3	3 2 6	60		
8 41.2	3 2.5	60			35 59.0	3 2.7	60		
53.3	12.1	4			36 11.2	12.2	4		
9 5.5	12.2	4			23.3	12.1	4		
17.7	12.2	4			35.4	12.1	4		
29.8	12.1	4			47.6	12.2	4		
42.0	12.2	4			59.8	12.2	4		
54.1	12.1	4	67.0	50.5	37 12.0	12.2	4	71.0	46.5

Chronometer at 0h. mean time Santiago, + 28m. 2s.29, gaining daily 5s.03.

Scale reading for torsion.

Circle 90° E. . . . . 300 Circle 0° . . . . . 299.15 Circle 90° W. 298.5

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ′
A	135 36 10	120 9 50	131 23 30	124 22 30	124 22 0	131 23 20	120 10 0	135 36 20
B	36 30	10 10	24 0	23 0	22 50	24 0	10 40	37 0
C	36 40	10 10	24 0	23 10	22 40	24 0	10 30	36 50
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	6 3	5 59	5 53	5 48	5 44	5 41	5 38	5 34
	°	°	°	°	°	°	°	°
Temperature	70.7	70.7	70.5	70.5	70.5	70 5	69.5	69.5

NOVEMBER 29, 1850.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		. °	Div.
4 56 31.0					6 18 42.2				
43.1	12.1	4	59.8	103.0	54.4	12.2	4	63.5	132.5
55.2	12 1	4			19 6.5	12.1	4		
57 7.4	12.2	4			18.7	12.2	4		
19.5	12.1	4			30.8	12.1	4		
31.7	12.2	4			43.0	12.2	4		
43.8	12.1	4			55.2	12.2	4		
59 33.3	1 49.5	36			21 44.7	1 49.5	36		
5 2 35.7	3 2 4	60			24 47.1	3 2.4	60		
5 37.9	3 2.2	60	. .	79.8	27 49.6	3 2.5	60	. .	98.0
8 40.3	3 2.4	60			30 51.9	3 2.3	60		

NOVEMBER 29, 1850—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 11 42.7	3 2.4	60			6 33 54.3	3 2.4	60		
54.8	12.1	4			34 6.4	12.1	4		
12 6.9	12.1	4			18.6	12.2	4		
19.0	12.1	4			30.7	12.1	4		
31.2	12.2	4			42.8	12.1	4		
43.3	12.1	4			55.0	12.2	4		
55.4	12.1	4			35 7.2	12.2	4		
13 7.6	12.2	4	59.0	56.0	19.4	12.2	4	64.5	67.0

Chronometer at 0h. mean time Santiago, + 29m. 29s.15, gaining daily 4s.82.

Scale reading for torsion.

Circle 90° E. . . . . 300.20 Circle 0° . . . . . 300 Circle 90° W. 299.25

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ″
A	166 53 30	151 27 10	162 41 10	155 39 20	155 39 0	162 41 10	151 26 30	166 54 10
B	54 10	28 0	42 0	40 0	39 40	41 50	27 20	55 0
C	54 10	28 0	42 0	40 10	39 50	41 50	27 20	55 0
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	6 1	5 57	5 52	5 48	5 44	5 40	5 36	5 31
	°	°	°	°	°	°	°	°
Temperature	62.3	62.3	62.0	62.0	60.5	60.5	60.0	60.0

DECEMBER 2, 1850.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 21 46.0					7 39 43.9				
58.2	12.2	4	73.5	100.3	56.0	12.1	4	71.0	131.0
22 10.3	12.1	4			40 8.2	12.2	4		
22.5	12.2	4			20.4	12.2	4		
34.7	12.2	4			32.5	12.1	4		
46.9	12.2	4			44.6	12.1	4		
59.0	12.1	4			56.8	12.2	4		
24 48.6	1 49.6	36			42 46.5	1 49.7	36		
27 51.1	3 2.5	60			45 49.2	3 2.7	60		
30 53.8	3 2.7	60	. .	70.5	48 52.0	3 2.8	60	. .	100.4
33 56.5	3 2.7	60			51 54.6	3 2.6	60		
36 59.2	3 2.7	60			54 57.3	3 2.7	60		

DECEMBER 2, 1850—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 37 11.4	12.2	4			7 55 9.5	12.2	4		
23.5	12.1	4			21.7	12.2	4		
35.7	12.2	4			33.9	12.2	4		
47.8	12.1	4			46.0	12.1	4		
38 0.0	12.2	4			58.2	12.2	4		
12.2	12.2	4			56 10.4	12.2	4		
24.4	12.2	4	73.8	46.5	22.5	12.1	4	69.0	68.3

Chronometer at 0h. mean time Santiago, + 29m. 43s.62, gaining daily 4s.82.

Scale reading for torsion.

Circle 90° E. . . . . 300.77 Circle 0° . . . . . 299.95 Circle 90° W. 299.36

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	158 7 50	142 38 10	153 54 10	146 52 10	146 53 10	153 53 20	142 41 30	158 5 10
B	8 30	39 0	55 10	53 0	53 40	54 30	42 10	6 10
C	8 50	38 50	55 0	52 50	54 0	54 20	42 10	6 0
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	7 28	7 24	7 19	7 13	7 7	7 0	6 54	6 50
	°	°	°	°	°	°	°	°
Temperature	71.0	71.0	71.0	71.0	71.5	71.5	72.0	72.0

Remarks.

After the first vibration experiments, the V aperture in the lower suspension pin was broken; repaired it, and put in a new thread for the second series; so that the torsion force given above is for the second series. The first series must be used with the torsion force of the series of the 29th of November, as given on the preceding page.

DECEMBER 11, 1850.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 41 20.2					6 4 38.4				
32.4	12.2	4	81.3	100.8	50.6	12.2	4	85.0	81.2
44.6	12.2	4			5 2.7	12.1	4		
56.8	12.2	4			14.9	12.2	4		
42 9.0	12.2	4			27.2	12.3	4		
21.3	12.3	4			39.4	12.2	4		
33.5	12.2	4			51.6	12.2	4		

DECEMBER 11, 1850—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 44 23.2	1 49.7	36			6 7 41.4	1 49.8	36		
47 26.1	3 2.9	60			10 44.3	3 2.9	60		
50 29.1	3 3.0	60	. .	77.7	13 47.4	3 3.1	60	. .	61.2
53 32.0	3 2.9	60			16 50.4	3 3.0	60		
56 35.0	3 3.0	60			19 53.4	3 3.0	60		
47.1	12.1	4			20 5.5	12.1	4		
59.3	12.2	4			17.8	12.3	4		
57 11.5	12.2	4			30.0	12.2	4		
23.7	12.2	4			42.2	12.2	4		
35.8	12.1	4			54.4	12.2	4		
48.0	12.2	4			21 6.7	12.3	4		
58 0.2	12.2	4	81.5	52.5	18.8	12.1	4	84.7	42.2

Chronometer at 0h. mean time Santiago, + 30m. 27s.07, gaining daily 4s.83.

Scale reading for torsion.

Circle 90° E. . . . . 301.99 Circle 0° . . . . . 300.98 Circle 90° W. 300.22

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	120 0 30	104 37 40	115 48 30	108 49 0	108 49 0	115 48 50	104 37 30	120 0 0
B	1 20	38 30	49 20	49 50	49 50	49 20	38 10	50
C	1 0	38 30	49 10	49 40	49 40	49 10	37 50	30
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	5 45	5 41	5 37	5 34	5 31	5 29	5 25	5 21
	°	°	°	°	°	°	°	°
Temperature	84.0	84.0	83.5	83.5	83.5	83.5	83.7	83.7

Remarks.

Very thin cirri. Used a new suspension thread for the 3-inch magnet.

DECEMBER 25, 1850.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 22 1.4					6 37 45.7				
13.6	12.2	4	80.0	114.5	57.9	12.2	4	80.0	68.0
25.8	12.2	4			38 10.2	12.3	4		
38.0	12.2	4			22.4	12.2	4		
50.2	12.2	4			34.6	12.2	4		
23 2.4	12.2	4			46.7	12.1	4		
14.5	12.1	4			58.9	12.2	4		
25 4.3	1 49 8	36			40 48.7	1 49.8	36		

DECEMBER 25, 1850—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 28 7.3	3 3.0	60			6 43 51.8	3 3.1	60		
31 10.2	3 2.9	60	. .	81.5	46 54.9	3 3.1	60	. .	51.8
34 13.2	3 3.0	60			49 57.9	3 3.0	60		
37 16.3	3 3.1	60			53 1.1	3 3.2	60		
28.4	12.1	4			13.3	12.2	4		
40.6	12.2	4			25.5	12.2	4		
52.8	12.2	4			37.7	12.2	4		
38 5.0	12.2	4			49.9	12.2	4		
17.2	12.2	4			54 2.1	12.2	4		
29.4	12.2	4	80.0	55.8	14.2	12.1	4		
					26.4	12.2	4	79.5	35.0

Chronometer at 0h. mean time Santiago + 31*m*. 34*s*.70, gaining daily 4*s*.83.

Scale reading for torsion.

Circle 90° E. . . . 300.02 Circle 0° . . . . . 299.20 Circle 90° W. 298.36

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	349 13 10	333 50 50	345 2 0	338 2 40	338 2 50	345 1 30	333 51 20	349 11 50
B	14 0	51 40	2 40	3 30	3 30	2 20	52 10	12 30
C	14 0	51 40	2 50	3 20	3 40	2 20	52 20	12 50
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	6 24	6 20	6 17	6 14	6 9	6 6	6 2	5 57
	°	°	°	°	°	°	°	°
Temperature	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0

Remarks.

Used a new suspension thread for the 3-inch magnet.

JANUARY 1, 1851.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
7 57 3.0					9 28 59.5				
15.4	12.4	4	74.0	169.0	29 11.8	12.3	4	70.2	147.0
28.0	12.6	4			24.0	12.2	4		
40.3	12.3	4			36.2	12.2	4		
52.4	12.1	4			48.4	12.2	4		
58 4.3	11.9	4			30 0.7	12.3	4		
16.4	12.1	4			13.0	12.3	4		

JANUARY 1, 1851—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
8 0 6.2	1 49.8	36			9 32 3.0	1 50.0	36		
3 9.4	3 3.2	60	. .	132.5	35 6.4	3 3.4	60		
6 13.0	3 3.6	60			38 9.7	3 3.3	60	. .	111.0
9 16.2	3 3.2	60			41 13.0	3 3.3	60		
12 18.9	3 2.7	60			44 16.2	3 3.2	60		
31.1	12.2	4			28.5	12.3	4		
43.3	12.2	4			40.7	12.2	4		
55.5	12.2	4			53.0	12.3	4		
13 8.0	12.5	4			45 5.2	12.2	4		
20.2	12.2	4	73.6	71.0	17.4	12.2	4		
					29.5	12.1	4	69.6	52.5

Chronometer at 0h. mean time Santiago, + 32m. 6s.32, gaining daily 4s.52.

Scale reading for torsion.

Circle 90° E. . . . . 290.5 Circle 0° . . . . . 289.4 Circle 90° W. 288.2

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	37 26 40	22 5 40	33 16 50	26 19 20	26 16 30	33 16 40	22 2 30	37 29 50
B	26 50	6 0	17 10	19 50	16 50	17 0	3 0	30 10
C	29 10	6 30	17 30	20 0	17 20	17 20	3 10	30 30
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	8 0	8 6	8 18	8 27	8 34	8 43	8 56	9 9
	°	°	°	°	°	°	°	°
Temperature	73.0	73.0	72.5	72.5	72.3	72.0	72.0	71.5

JANUARY 11, 1851.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 39 17.2					5 52 38.5				
29.3	12.1	4	78.5	123.0	50.7	12.2	4	81.0	106.0
41.5	12.2	4			53 3.0	12.3	4		
53.8	12.3	4			15.2	12.2	4		
40 6.0	12.2	4			27.4	12.2	4		
18.3	12.3	4			39.6	12.2	4		
30.5	12.2	4			51.8	12.2	4		
42 20.3	1 49.8	36			55 41.8	1 50.0	36		
45 23.4	3 3.1	60			58 45.1	3 3.3	60		
48 26.6	3 3.2	60	. .	91.0	6 1 48.3	3 3.2	60	. .	84.0

JANUARY 11, 1851—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 51 29.7	3 3.1	60			6 4 51.6	3 3.3	60		
54 32.8	3 3.1	60			7 54.7	3 3.1	60		
45.0	12.2	4			8 6.9	12.2	4		
57.2	12.2	4			19.2	12.3	4		
55 9.5	12.3	4			31.4	12.2	4		
21.7	12.2	4			43.6	12.2	4		
33.9	12.2	4			55.8	12.2	4		
46.1	12.2	4			9 8.0	12.2	4		
58.3	12.2	4	78.5	63.0	20.2	12.2	4	80.3	57.6

Chronometer at 0h. mean time Santiago, + 32m. 51s.48, gaining daily 4s.81.

Scale reading for torsion.

Circle 90° E. . . . . 301.13 Circle 0° . . . . . 300.55 Circle 90° W. 299.37

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	332 22 20	317 0 0	328 10 50	321 11 10	321 12 30	328 10 0	317 3 0	332 20 0
B	23 0	30	11 30	12 0	13 20	10 40	3 40	20 30
C	22 50	30	11 30	12 0	13 20	10 40	3 40	20 10
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	5 36	5 32	5 29	5 25	5 23	5 20	5 16	5 12
	°	°	°	°	°	°	°	°
Temperature	80.0	80.0	79.5	79.5	79.0	79.0	79.0	79.0

JANUARY 22, 1851.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 5 2.9					5 33 50.1				
15.2	12.3	4	82.0	110.2	34 2.4	12.3	4	87.0	108.7
27.4	12.2	4			14.6	12.2	4		
39.6	12.2	4			26.8	12.2	4		
51.8	12.2	4			39.1	12.3	4		
6 4.2	12.4	4			51.4	12.3	4		
16.4	12.2	4			35 3.6	12.2	4		
8 6.6	1 50.2	36			36 54.1	1 50.5	36		
11 10.0	3 3.4	60			39 57.8	3 3.7	60		
14 13.6	3 3.6	60	. .	80.0	43 1.3	3 3.5	60	. .	69.0
17 17.2	3 3.6	60			46 5.9	3 4.6	60		
20 20.7	3 3.5	60			49 9.7	3 3.8	60		
32.9	12.2	4			22.1	12.4	4		

JANUARY 22, 1851—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 20 45.1	12.2	4			5 49 34.3	12.2	4		
57.4	12.3	4			46.6	12.3	4		
21 9.6	12.2	4			58.9	12.3	4		
21.8	12.2	4			50 11.1	12.2	4		
34.1	12.3	4			23.3	12.2	4		
46.3	12.2	4	84.0	57.0	35.5	12.2	4	88.5	49.5

Chronometer at 0h. mean time Santiago, + 33m. 48s.93, gaining daily 4s.79.

Scale reading for torsion.

Circle 90° E. . . . . 300.84 Circle 0° . . . . . 299.60 Circle 90° W. 299.15

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	148 2 20	132 42 50	143 51 20	136 53 30	136 55 0	143 50 50	132 35 25	148 0 50
B	3 10	43 25	52 10	54 10	55 40	51 30	36 30	1 30
C	3 0	43 30	52 10	54 10	55 40	51 30	36 30	1 40
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	5 12	5 8	5 4	5 0	4 57	4 53	4 49	4 45
	°	°	°	°	°	°	°	°
Temperature	87.5	87.5	86.0	86.0	85.0	85.0	84.5	84.5

Remarks.

During these observations the instrument was not well sheltered from the sun. This may account for the discordance in the deflection experiments, and during the last vibration experiments the instrument was slightly jarred.

FEBRUARY 1, 1851.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 17 50.5					5 46 55.1				
18 2.8	12.3	4	62.0	87.0	47 7.3	12.2	4	63.5	116.0
15.1	12.3	4			19.6	12.3	4		
27.4	12.3	4			31.8	12.2	4		
39.6	12.2	4			44.0	12.2	4		
51.8	12.2	4			56.2	12.2	4		
19 4.1	12.3	4			48 8.4	12.2	4		
20 53.9	1 49.8	36			49 58.4	1 50.0	36		
23 57.2	3 3.3	60			53 1.7	3 3.3	60		
27 0.5	3 3.3	60	. .	67.0	56 4.9	3 3.2	60	. .	88.0

FEBRUARY 1, 1851—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 30 3.7	3 3.2	60			5 59 8.3	3 3.4	60		
33 6.9	3 3.2	60			6 2 11.6	3 3.3	60		
19.2	12.3	4			23.8	12.2	4		
31.4	12 2	4			36.0	12.2	4		
43.6	12.2	4			48.2	12.2	4		
55.8	12.2	4			3 0.4	12.2	4		
34 8.0	12.2	4	62.5	46.5	12.6	12.2	4		
20.2	12.2	4			24.9	12.3	4		
32 4	12.2	4			37.1	12 2	4	63.0	61.7

Chronometer at 0h. mean time Santiago, + 31m. 36s.87, gaining daily 4s.79.

Scale reading for torsion.

Circle 90° E. . . . . 302.06 Circle 0° . . . . . 301.14 Circle 90° W. 300.26

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	87 28 10	72 3 10	83 19 30	76 16 10	76 16 30	83 14 50	72 5 30	87 25 20
B	28 40	3 50	19 50	16 40	17 10	15 30	6 10	25 50
C	28 30	3 40	19 40	16 30	17 0	15 20	6 0	25 50
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	5 25	5 20	5 15	5 12	5 9	5 5	5 2	4 58
	°	°	°	°	°	°	°	°
Temperature	64.7	64.7	64.0	64.0	63.5	63.5	62.7	62.7

Remarks.

Cloudy.

FEBRUARY 11, 1851.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 6 14.2					6 26 49 2				
26.4	12.2	4	77.0	109.0	27 1.4	12.2	4	81.2	120.0
38 6	12.2	4			13.7	12.3	4		
50.8	12.2	4			25.9	12.2	4		
7 3.1	12.3	4			38.2	12 3	4		
15.3	12.2	4			50.4	12.2	4		
27.6	12.3	4			28 2.8	12.4	4		
9 17.8	1 50.2	36			29 53.0	1 50.2	36		
12 21.4	3 3.6	60			32 56.8	3 3.8	60		
15 24.9	3 3.5	60	. .	81.8	36 0.6	3 3.8	60	. .	88.5

FEBRUARY 11, 1851—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 18 29.0	3 4.1	60			6 39 4.6	3 4.0	60		
21 32.6	3 3.6	60			42 8.5	3 3.9	60		
44.8	12.2	4			20.7	12.2	4		
57.1	12.3	4			32.9	12.2	4		
22 9.4	12.3	4			45.2	12.3	4		
21.5	12.1	4			57.4	12.2	4		
33.8	12.3	4			43 9.6	12.2	4		
46.0	12.2	4			22.0	12.4	4		
58.3	12.3	4	79.0	56.5	34.2	12.2	4	82.5	63.0

Chronometer at 0h. mean time Santiago, + 35m. 34s.31, gaining daily 4s.77.

Scale reading for torsion.

Circle 90° E. . . . . 302.89 Circle 0° . . . . . 301.75 Circle 90° W. 300.90

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	65 24 20	50 6 0	61 14 0	54 15 50	54 17 30	61 11 40	50 9 40	65 19 40
B	25 10	6 40	14 40	16 30	18 30	12 30	10 0	20 10
C	25 0	6 30	14 40	16 20	18 0	12 30	9 50	20 20
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	6 13	6 9	6 3	6 0	5 55	5 52	5 49	5 45
	°	°	°	°	°	°	°	°
Temperature	80.5	80.5	80.5	80.5	79.8	79.8	80.3	80.3

FEBRUARY 21, 1851.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
3 56 52.5					5 20 33.9				
57 4.7	12.2	4	76.0	107.0	46.2	12.3	4	78.5	123.0
17.0	12.3	4			58.4	12.2	4		
29.3	12.3	4			21 10 6	12.2	4		
41.5	12.2	4			22.9	12.3	4		
53.7	12.2	4			35.2	12.3	4		
58 5.9	12.2	4			47.4	12.2	4		
59 56.4	1 50.5	36			23 38.0	1 50.6	36		
4 3 0.4	3 4.0	60	. .	80.0	26 41.8	3 3.8	60	. .	92.0
6 4.2	3 3.8	60			29 45.7	3 3.9	60		

FEBRUARY 21, 1851—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 9 8.1	3 3.9	60			5 32 49.6	3 3.9	60		
12 11.9	3 3.8	60			35 53.7	3 4.1	60		
24.2	12.3	4			36 6.1	12.4	4		
36.5	12.3	4			18.3	12.2	4		
48.8	12.3	4			30.6	12.3	4		
13 0.1	11.3	4			42.8	12.2	4		
13.4	13.3	4			55.0	12.2	4		
25.6	12.2	4			37 7.3	12.3	4		
37.8	12.2	4	77.0	57.0	19.6	12.3	4	79.0	65.0

Chronometer at 0h. mean time Santiago, + 36m. 13s.36, gaining daily 4s.77.

Scale reading for torsion.

Circle 90° E. . . . . 306.42 Circle 0° . . . . . 305.83 Circle 90° W. 305.60

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	81 30 50	66 9 50	76 19 10	69 20 20	69 21 30	76 17 30	66 12 30	81 27 20
B	31 50	10 30	19 50	21 10	22 20	18 10	13 10	28 0
C	31 40	10 40	19 40	21 10	22 10	18 0	13 0	28 0
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	5 0	4 55	4 50	4 46	4 42	4 39	4 36	4 32
	°	°	°	°	°	°	°	°
Temperature	78.5	78.5	78.0	78.0	77.7	77.7	77.5	77.5

Remarks.

Used a new suspension thread for the second series of vibrations. The torsion force is for that thread.

MARCH 1, 1851.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 40 22.9					5 56 41.6				
35.2	12.3	4	75.7	199.0	53.8	12.2	4	78.5	180.0
47.4	12.2	4			57 6.0	12.2	4		
59.6	12.2	4			18.2	12.2	4		
41 11.8	12.2	4			30.5	12.3	4		
24.0	12.2	4			42.8	12.3	4		
36.3	12.3	4			55.0	12.2	4		
43 26.7	1 50.4	36			59 45.3	1 50.3	36		
46 30.4	3 3.7	60			6 2 49.2	3 3.9	60		

MARCH 1, 1851—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 49 34.2	3 3.8	60	. .	144.5	6 5 53.2	3 4.0	60	. .	97.0
52 37.8	3 3.6	60			8 57.0	3 3.8	60		
55 41.7	3 3.9	60			12 0.9	3 3.9	60		
54.0	12.3	4			13.2	12.3	4		
56 6.2	12.2	4			25.5	12.3	4		
18.5	12.3	4			37.7	12.2	4		
30.8	12.3	4			50.0	12.3	4		
43.1	12.3	4			13 2.2	12.2	4		
55.3	12.2	4			14.5	12.3	4		
57 7.4	12.1	4	76.0	100.5	26.7	12.2	4	78.5	68.0

Chronometer at 0h. mean time Santiago, + 36*m*. 54*s*.12, gaining daily 4*s*.94.

Scale reading for torsion.

Circle 90° E. . . . . 303.0 Circle 0° . . . . . 302.0 Circle 90° W. . . . 301.2

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	131 49 10	116 34 40	127 40 0	120 44 0	120 44 0	127 40 30	116 34 20	131 49 0
B	50 20	35 20	40 50	44 50	45 0	41 20	35 10	50 10
C	50 20	35 20	40 50	44 50	45 0	41 0	35 0	50 10
	h. m.	*h. m.*	*h. m.*	*h. m.*	*h. m.*	*h. m.*	*h. m.*	*h. m.*
Time	5 41	5 37	5 33	5 30	5 27	5 24	5 20	5 16
	°	°	°	°	°	°	°	°
Temperature	78.0	78.0	78.0	78.0	77.5	77.5	76.5	76.5

MARCH 11, 1851.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
6 32 15.0					7 32 25.6				
27.3	12.3	4	80.0	143.0	38.0	12.4	4	82.0	108.0
39.5	12.2	4			50.2	12.2	4		
51.7	12.2	4			33 2.4	12.2	4		
33 4.0	12.3	4			14.6	12.2	4		
16.2	12.2	4			26.8	12.2	4		
28.5	12.3	4			39.1	12.3	4		
35 19.1	1 50.6	36			35 30.0	1 50.9	36		
38 23.2	3 4.1	60			38 31.2	3 4.2	60		
41 27.5	3 4.3	60	. .	110.7	41 38.6	3 4.4	60	. .	87.0

MARCH 11, 1851—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
6 44 31.7	3 4.2	60			7 44 42.8	3 4.2	60		
47 35.8	3 4.1	60			47 47.1	3 4.3	60		
48.1	12.3	4			59.4	12.3	4		
48 0.4	12.3	4			48 11.7	12.3	4		
12.6	12.2	4			23.9	12.2	4		
24.8	12.2	4			36.2	12.3	4		
37.0	12.2	4			48.5	12.3	4		
49.3	12.3	4			49 0.7	12.2	4		
49 1.6	12.3	4	81.5	75.0	13.0	12.3	4	81.5	63.0

Chronometer at 0h. mean time Santiago, + 37m. 43s.53, gaining daily 4s.94.

Scale reading for torsion.

Circle 90° E. . . . . 299.65 Circle 0° . . . . . 298.98 Circle 90° W. 298.30

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and fifteen-hundredths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	. .	. .	226 47 50	216 44 10	216 46 30	226 44 0		
B	. .	. .	48 40	45 0	47 30	44 50		
C	. .	. .	48 40	45 20	47 30	45 10		
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	. .	. .	7 25	7 20	7 15	7 10		
	°	°	°	°	°	°	°	°
Temperature	. .	. .	82.0	82.0	81.5	81.5		

MARCH 19, 1851.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 39 18.5					6 5 2.7				
30.8	12.3	4	75.0	123.0	15.0	12.3	4	80.0	120.0
43.1	12.3	4			27.2	12.2	4		
55.4	12.3	4			39.5	12.3	4		
40 7.7	12.3	4			51.8	12.3	4		
19.9	12.2	4			6 4.1	12.3	4		
32.2	12.3	4			16.4	12.3	4		
42 22.6	1 50.4	36			8 6.5	1 50.1	36		
45 26.5	3 3.9	60			11 10.7	3 4.2	60		
48 30.3	3 3.8	60	. .	86.0	14 14.8	3 4.1	60	. .	92.0
51 34.3	3 4.0	60			17 18.7	3 3.9	60		
54 38.3	3 4.0	60			20 22.6	3 3.9	60		

MARCH 19, 1851—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 54 50.6	12.3	4			6 20 34.9	12.3	4		
55 2.8	12.2	4			47.2	12.3	4		
15.1	12.3	4			59.5	12.3	4		
27.4	12.3	4			21 11.8	12.3	4		
39.6	12.2	4			24.1	12.3	4		
51.8	12.2	4			36.4	12.3	4		
56 4.1	12.3	4	79.0	58.5	48.6	12.2	4	80.5	64.0

Chronometer at 0h. mean time Santiago, + 38m. 23s.05, gaining daily 4s.94.

Scale reading for torsion.

Circle 90° E. . . . . Circle 0° . . . . . Circle 90° W. . . . . .

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	130 13 50	114 59 10	126 3 40	119 8 30	119 9 10	126 1 50	115 0 50	130 8 30
B	14 30	115 0 0	4 10	9 0	9 50	2 20	1 50	9 0
C	14 50	0 0	4 20	9 0	9 50	2 30	1 30	9 10
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	5 44	5 39	5 35	5 31	5 27	5 25	5 20	5 17
	°	°	°	°	°	°	°	°
Temperature	80.5	80.5	80.0	80.0	80.0	80.0	85.5	85.5

Remarks.

Instrument not well sheltered from the sun. At the end of the second series of vibrations the suspension thread broke; therefore, the torsion force was not observed, and that for March 11 is to be used.

APRIL 1, 1851.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 52 20.2					6 21 47.4				
32.4	12.2	4	61.0	111.0	59.6	12.2	4	63.5	123.0
44.7	12.3	4			22 11.9	12.3	4		
57.0	12.3	4			24.1	12.2	4		
53 9.2	12.2	4			36.4	12.3	4		
21.5	12.3	4			48.7	12.3	4		
33.7	12.2	4			23 0.9	12.2	4		
55 24.2	1 50.5	36			24 51.2	1 50.3	36		
58 28.0	3 3.8	60			27 55.1	3 3.9	60		
5 1 31.8	3 3.8	60	. .	84.5	30 59.1	3 4.0	60	. .	93.0

APRIL 1, 1851—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 4 35.6	3 3.8	60			6 34 3.0	3 3.9	60		
7 39.5	3 3.9	60			37 6.9	3 3.9	60		
51.8	12.3	4			19.2	12.3	4		
8 4.0	12.2	4			31.5	12.3	4		
16.3	12.3	4			43.9	12.4	4		
28.5	12.2	4			56.0	12.1	4		
40.7	12.2	4			38 8.3	12.3	4		
53.0	12.3	4			20.5	12.2	4		
9 5.2	12.2	4	61.5	59.5	32.8	12.3	4	64.0	63.0

Chronometer at 0h. mean time Santiago, + 39m. 29s.41, gaining daily 5s.04.

Scale reading for torsion.

Circle 90° E. . . . . 302.55 Circle 0° . . . . . 301.54 Circle 90° W. 300.82

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	341 4 40	325 42 30	336 51 50	329 53 40	329 55 30	336 50 10	325 47 40	340 58 40
B	5 30	43 30	53 0	54 50	56 30	51 10	48 50	59 30
C	5 30	43 30	53 0	54 40	56 30	51 10	48 30	59 40
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	5 53	5 48	5 44	5 41	5 37	5 33	5 29	5 25
	°	°	°	°	°	°	°	°
Temperature	62.5	62.5	62.5	62.5	61.5	61.5	61.3	61.3

Remarks.

Used a new suspension thread.

APRIL 11, 1851.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 14 54.4					6 34 53.9				
15 6.7	12.3	4	64.5	119.0	35 6.2	12.3	4	67.0	141.0
18.9	12.2	4			18.5	12.3	4		
31.2	12.3	4			30.8	12.3	4		
43.4	12.2	4			43.1	12.3	4		
55.7	12.3	4			55.4	12.3	4		
16 7.9	12.2	4			36 7.6	12.2	4		
17 58.3	1 50.3	36			37 58.2	1 50.6	36		
21 2.1	3 3.8	60			41 2.7	3 4.5	60		

APRIL 11, 1851—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 24 6.3	3 4.2	60	. .	90.0	6 44 7.1	3 4.4	60	. .	91.0
27 10.1	3 3.8	60			47 11.5	3 4.4	60		
30 14.0	3 3.9	60			50 16.0	3 4.5	60		
26.3	12.3	4			28.3	12.3	4		
38.6	12.3	4			40.5	12.2	4		
50.9	12.3	4			52.7	12.2	4		
31 3.1	12.2	4			51 5.0	12.3	4		
15.4	12.3	4			17.3	12.3	4		
27.6	12.2	4			29.7	12.4	4		
39.9	12.3	4	65.5	63.0	42.0	12.3	4	66.5	61.5

Chronometer at 0h. mean time Santiago, + 40m. 17s.75, gaining daily 4s.83.

Scale reading for torsion.

Circle 90° E. . . . . 297.55 Circle 0° . . . . . 297.19 Circle 90° W. 296.57

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	215 34 20	200 25 20	211 27 30	204 32 0	204 30 50	211 27 50	200 19 50	215 39 10
B	35 0	26 0	28 0	32 40	31 30	28 10	20 10	39 30
C	35 0	26 0	28 10	32 40	31 30	28 20	20 10	39 40
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	5 46	5 50	5 54	5 58	6 0	6 3	6 9	6 14
	°	°	°	°	°	°	°	°
Temperature	66.0	66.0	66.0	66.0	66.5	66.5	66.5	66.5

APRIL 23, 1851.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 16 58.8					5 50 0.0				
17 11.1	12.3	4	61.0	97.0	12.3	12.3	4	63.7	147.0
23.4	12.3	4			24.5	12.2	4		
35.7	12.3	4			36.8	12.3	4		
48.0	12.3	4			49.1	12.3	4		
18 0.2	12.2	4			51 1.4	12.3	4		
12.5	12.3	4			13.6	12.2	4		
20 2.8	1 50.3	36			53 4.1	1 50.5	36		
23 7.0	3 4.2	60			56 8.3	3 4.2	60		
26 10.8	3 3.8	60	. .	74.0	59 12.3	3 4.0	60	. .	112.6

APRIL 23, 1851—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 29 14.8	3 4.0	60			6 2 16.2	3 3.9	60		
32 18 9	3 4.1	60			5 20.1	3 3.9	60		
31.2	12.3	4			33.0	12.9*	4		
43.5	12.3	4			45.3	12.3	4		
55.8	12.3	4			57.6	12.3	4		
33 8.1	12.3	4			6 9.8	12.2	4		
20.3	12.2	4			22.1	12.3	4		
32.5	12.2	4			34.4	12.3	4		
44.8	12.3	4	61.7	53.0	46.7	12.3	4	63.5	79.0

Chronometer at 0h. mean time Santiago, + 41m. 15s.76, gaining daily 4s.83.

Scale reading for torsion.

Circle 90° E. . . . . 304.00 Circle 0° . . . . . 303.42 Circle 90° W. 302.87

Remarks.

* At this observation the observer was jarred, which may account for the discrepancy. Passing clouds.

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	6 46 30	351 29 40	2 36 20	355 39 30	355 40 0	2 34 40	351 31 30	6 43 20
B	47 0	30 0	36 40	40 0	41 0	35 0	32 30	43 40
C	47 0	30 0	37 0	40 0	41 0	35 0	32 30	44 0
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	5 34	5 29	5 22	5 18	5 14	5 8	5 3	4 59
	°	°	°	°	°	°	°	°
Temperature	63.5	63.5	63.7	63.7	64.5	64.5	63.5	63.5

MAY 1, 1851.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 52 33.4					6 7 53.0				
45.5	12.1	4	66.5	124.0	8 5.2	12.2	4	68.5	117.0
57.8	12.3	4			17.5	12.3	4		
53 10.1	12.3	4			29.8	12.3	4		
22.4	12.3	4			42.1	12.3	4		
34.6	12.2	4			54.4	12.3	4		
46.9	12.3	4			9 6.7	12.3	4		
55 37.2	1 50.3	36			10 57.2	1 50.5	36		
58 41.3	3 4.1	60			14 1.3	3 4.1	60		
5 1 45.4	3 4.1	60	. .	92.0	17 5.7	3 4.4	60	. .	87.3

MAY 1, 1851—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 4 49.5	3 4.1	60			6 20 10.0	3 4.3	60		
7 53.4	3 3.9	60			23 14.3	3 4.3	60		
8 5.7	12.3	4			26.5	12.2	4		
17.8	12.1	4			38.8	12.3	4		
30.2	12.4	4			51.0	12.2	4		
42.4	12.2	4			24 3.4	12.4	4		
54.7	12.3	4			15.7	12.3	4		
9 7.1	12.4	4			28.0	12.3	4		
19.3	12.2	4	65.5	61.5	40.2	12.2	4	68.5	62.0

Chronometer at 0h. mean time Santiago, + 41m. 44s.23, gaining daily 4s.32.

Scale reading for torsion.

Circle 90° E. . . . . 298.79 Circle 0° . . . . . 298.01 Circle 90° W. 297.90

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.			DEFLECTOR WEST.				
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	242 8 30	226 53 50	237 59 0	231 3 10	231 4 10	237 58 10	226 56 10	242 5 30
B	9 0	54 10	59 30	3 40	4 40	58 20	56 50	6 10
C	9 0	54 30	238 0 0	3 50	5 0	58 40	56 40	6 10
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	5 50	5 47	5 43	5 40	5 37	5 34	5 30	5 27
	°	°	°	°	°	°	°	°
Temperature	67.2	67.2	67.0	67.0	66.5	66.5	66.3	66.3

Remarks.

Used a new suspension thread for the 3-inch magnet, and a single strand of silk for the 3.67-inch magnet in the second series of vibration experiments. The torsion force for the first series will be the same as on the 23d of April.

MAY 12, 1851.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 44 5 3					6 10 14.1				
17.6	12.3	4	57.0	148.0	26.4	12.3	4	60.5	143.0
29.9	12.3	4			38.7	12.3	4		
42.2	12.3	4			51.0	12.3	4		
54.4	12.2	4			11 3.2	12.2	4		
45 6.7	12.3	4			15.5	12.3	4		
19.0	12.3	4			27.7	12.2	4		
47 9.4	1 50.4	36			13 18.2	1 50.5	36		
50 13.5	3 4.1	60			16 22.3	3 4.1	60		

MAY 12, 1851—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 53 17.4	3 3.9	60	. .	90.7	6 19 26.5	3 4.2	60	. .	108.2
56 21.6	3 4.2	60			22 30.5	3 4.0	60		
59 25.8	3 4.2	60			25 34.7	3 4.2	60		
37.8	12.0	4			47.0	12.3	4		
50.2	12.4	4			59.3	12.3	4		
5 0 2.5	12.3	4			26 11.5	12.2	4		
14.7	12.2	4			23.9	12.4	4		
27.0	12.3	4			36.0	12.1	4		
39.2	12.2	4			48.4	12.4	4		
51.5	12.3	4	57.2	79.5	27 0.7	12.3	4	59.8	74.5

Chronometer at 0h. mean time Santiago, + 42*m*. 38*s*.63, gaining daily 4*s*.94.

Scale reading for torsion.

Circle 90° E. . . . . 298.88 Circle 0° . . . . . 298.32 Circle 90° W. 297.94

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	266 13 50	250 58 40	262 4 0	255 7 50	255 8 30	262 3 10	251 0 30	266 11 10
B	14 30	59 40	4 40	8 20	9 0	3 40	1 10	11 50
C	14 30	59 40	4 40	8 30	9 20	4 0	1 20	12 0
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	5 49	5 45	5 40	5 37	5 34	5 31	5 27	5 24
	°	°	°	°	°	°	°	°
Temperature	59.7	59.7	58.0	58.0	58.0	58.0	57.7	57.7

Remarks.

Used a new suspension thread for the 3.67-inch magnet. Passing clouds.

MAY 30, 1851.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
6 17 28.0					8 0 13.0				
40.3	12.3	4	53.7	123.0	25.2	12.2	4	55.1	81.0
52.6	12.3	4			37.5	12.3	4		
18 4.7	12.1	4			49.8	12.3	4		
17.1	12.4	4			1 2.2	12.4	4		
29.4	12.3	4			14.5	12.3	4		
41.6	12.2	4			26.7	12.2	4		
19 24.5	42.9	14			4 24.5	2 57.8	58		
22 25.2	3 0.7	59	. .	107.0	7 28.8	3 4.3	60		

MAY 30, 1851—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
6 25 23.1	2 57.9	58			8 10 27.0	2 58.2	58	. .	40.0
28 20.7	2 57.6	58			13 43.4	3 16.4	65		
31 18.8	2 58.1	58			16 47.4	3 4.0	60		
28.5	9.7	3			59.6	12.2	4		
49.5	21.0	7			17 11.8	12.2	4		
32 1.5	12.0	4			24.2	12.4	4		
14.0	12.5	4			36.5	12.3	4		
26.2	12.2	4			48.7	12.2	4		
38.5	12.3	4			18 1.0	12.3	4		
50.6	12.1	4	53.7	80.0	13.3	12.3	4	53.5	29.0

Chronometer at 0h. mean time Santiago, + 44m. 7s.64, gaining daily 4s.94.

Scale reading for torsion.

Circle 90° E. . . . . 300.57 Circle 0° . . . . . 299.90 Circle 90° W. 298.60

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	147 44 0	132 32 0	143 35 30	136 40 50	136 43 50	143 35 0	132 29 10	147 43 10
B	43 20	31 20	35 0	40 0	44 40	34 10	28 30	42 40
C	44 10	32 20	35 40	40 50	44 50	35 10	29 0	43 20
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	7 18	7 28	7 37	7 48	7 57	8 6	8 15	8 25
	°	°	°	°	°	°	°	°
Temperature	54.5	54.5	53.8	53.7	54.0	54.5	55.0	55.0

JUNE 11, 1851.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 5 28.6					6 29 37.3				
40.8	12.2	4	49.5	136.0	49.6	12.3	4	52.5	100.0
53.1	12.3	4			30 1.9	12.3	4		
6 5.4	12.3	4			14.2	12.3	4		
17.7	12.3	4			26.4	12.2	4		
29.9	12 2	4			38.7	12.3	4		
42.2	12.3	4			51.0	12.3	4		
8 32.7	1 50.5	36			32 41.4	1 50.4	36		
11 36.7	3 4.0	60			35 45.6	3 4.2	60		
14 40.5	3 3.8	60	. .	109.0	38 49.7	3 4.1	60	. .	76.0
17 44.4	3 3.9	60			41 53.8	3 4.1	60		

JUNE 11, 1851—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 20 48.4	3 4.0	60			6 44 58.0	3 4.2	60		
21 0.7	12.3	4			45 10.2	12.2	4		
13.0	12.3	4			22.5	12.3	4		
25.2	12.2	4			34.8	12.3	4		
37.4	12.2	4			47.0	12.2	4		
49.7	12.3	4			59.3	12.3	4		
22 2.0	12.3	4			46 11.6	12.3	4		
14.2	12.2	4	51.5	81.0	23.8	12.2	4	52.5	55.5

Chronometer at 0h. mean time Santiago, + 45*m*. 6*s*.98, gaining daily 4*s*.94.

Scale reading for torsion.

Circle 90° E. . . . . 298.44 Circle 0° . . . . . 297.52 Circle 90° W. 297.15

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	323 6 10	307 47 40	318 56 0	311 58 30	312 0 0	318 54 50	307 51 10	323 3 40
B	6 50	48 30	57 50	59 10	0 40	55 40	52 0	4 10
C	6 50	48 50	57 0	59 40	1 0	55 50	52 0	4 30
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	6 11	6 6	6 0	5 57	5 53	5 49	5 43	5 38
	°	°	°	°	°	°	°	°
Temperature	53.2	53.2	52.8	52.8	53.5	53.5	53.2	53.2

JUNE 18, 1851.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
6 39 48.0					7 55 22.9				
40 0.3	12.3	4	57.7	106.0	35.2	12.3	4	60.0	115.5
12.6	12.3	4			47.5	12.3	4		
24.9	12.3	4			59.7	12.2	4		
37.2	12.3	4			56 12.0	12.3	4		
49.5	12.3	4			24.3	12.3	4		
41 1.8	12.3	4			36.6	12.3	4		
42 52.3	1 50.5	36			58 27.2	1 50.6	36		
45 56.5	3 4.2	60			8 1 31.4	3 4.2	60		
49 0.8	3 4.3	60	. .	79.7	4 35.7	3 4.3	60	. .	86.0
52 5.2	3 4.4	60			7 40.1	3 4.4	60		
55 9.5	3 4.3	60			10 44.4	3 4.3	60		

JUNE 18, 1851—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
6 55 21.8	12.3	4			8 10 56.7	12.3	4		
34.0	12.2	4			11 9.0	12.3	4		
46.3	12.3	4			21.2	12.2	4		
58.6	12.3	4			33.5	12.3	4		
56 10.9	12.3	4			45.7	12.2	4		
23.2	12.3	4	57.5	58 5	58.0	12.3	4	59.2	60.0

Chronometer at 0h. mean time Santiago, + 45m. 41s.60, gaining daily 4s.94.

Scale reading for torsion.

Circle 90° E. . . . . 301.09 Circle 0° . . . . . 300.53 Circle 90° W. 299.99

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	7 12 0	352 35 30	3 15 10	356 32 0	355 55 40	3 53 10	351 56 10	7 51 40
B	12 40	36 10	15 50	32 40	56 20	53 50	57 0	52 30
C	12 40	36 20	16 10	33 0	56 20	54 10	57 10	52 30
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	7 44	7 41	7 37	7 34	7 31	7 28	7 23	7 20
	°	°	°	°	°	°	°	°
Temperature	59.2	59.2	59.0	59.0	58.8	58.8	58.0	58.0

Remarks.

In consequence of an accident to the deflecting apparatus the magnet hangs to one side when the level is adjusted, and the readings, with the deflector on opposite arms, do not agree.

AUGUST 11, 1851.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 0 45.3					6 15 15.4				
57.6	12.3	4	62.0	153.3	27.8	12.4	4	65.5	145.0
1 9.8	12.2	4			40.1	12.3	4		
22.2	12.4	4			52.4	12.3	4		
34.4	12.2	4			16 4.8	12.4	4		
46.7	12.3	4			17.1	12.3	4		
59.0	12.3	4			29.4	12.3	4		
3 49.9	1 50.9	36			18 20.4	1 51.0	36		
6 54.4	3 4.5	60			21 25.4	3 5.0	60		
9 59.4	3 5.0	60	. .	112.0	24 30.3	3 4.9	60	. .	108.0
13 3.8	3 4.4	60			27 35.4	3 5.1	60		

AUGUST 11, 1851—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 16 8.7	3 4.9	60			6 30 40.2	3 4.8	60		
21.0	12.3	4			52.5	12.3	4		
33.4	12.4	4			31 4.8	12.3	4		
45.7	12.3	4			17.0	12.2	4		
58.0	12.3	4			29.4	12.4	4		
17 10.2	12.2	4			41.7	12.3	4		
22.6	12.4	4			54.0	12.3	4		
34.9	12.3	4	63.0	67.0	32 6.3	12.3	4	65.0	75.0

Chronometer at 0h. mean time Santiago, + 2m. 22s.17, gaining daily 4s.90.

Scale reading for torsion.

Circle 90° E . . . . 305.42 Circle 0° . . . . . 303.92 Circle 90° W. 303.04

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	35 16 50	20 11 10	31 10 10	24 18 50	24 18 0	31 12 20	20 8 50	35 24 10
B	16 40	10 50	10 30	19 0	18 20	12 50	9 20	24 40
C	17 0	11 20	10 40	19 0	18 10	12 30	9 20	25 0
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	6 8	6 4	5 58	5 56	5 51	5 48	5 43	5 38
	°	°	°	°	°	°	°	°
Temperature	65.0	65.0	65.0	65.0	65.0	65.0	65.0	65.0

Remarks.

Owing to the injury sustained by the deflecting apparatus, the head of the suspension tube is thrown out of perpendicular with the instrument levelled in the usual manner. In the above observations it has been levelled by estimation, as is the vibration apparatus. Thin smoky clouds.

AUGUST 29, 1851.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 41 11.6					6 2 37.6				
23.9	12.3	4	61.8	110.0	49.9	12.3	4	63.2	103.3
36.2	12.3	4			3 2.2	12.3	4		
48.5	12.3	4			14.6	12.4	4		
42 0.9	12.4	4			26.9	12.3	4		
13.2	12.3	4			39.3	12.4	4		
25.4	12.2	4			51.6	12.3	4		
44 16.2	1 50.8	36			5 42.7	1 51.1	36		
47 20.7	3 4.5	60			8 47.7	3 5.0	60		

AUGUST 29, 1851—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 50 25.3	3 4.6	60	. .	79.8	6 11 52.7	3 5.0	60	. .	68.2
53 29.8	3 4.5	60			14 57.8	3 5.1	60		
56 34.5	3 4.7	60			18 2.8	3 5.0	60		
46.7	12.2	4			15.2	12.4	4		
59.0	12.3	4			27.5	12.3	4		
57 11.4	12.4	4			39.9	12.4	4		
23.7	12.3	4			52.2	12.3	4		
36.0	12.3	4			19 4.5	12.3	4		
48.2	12.2	4			16.8	12.3	4		
58 0.6	12.4	4	61.3	52.3	29.2	12.4	4	64.0	44.3

Chronometer at 0h. mean time Santiago, + 3m. 42s.14, gaining daily 4s.44.

Scale reading for torsion.

Circle 90° E. . . . . 304.84 Circle 0° . . . . . 303.27 Circle 90° W. 302.15

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	23 58 20	8 48 50	19 50 10	12 56 50	12 57 0	19 49 50	8 49 30	23 57 50
B	1 0	52 0	53 40	59 50	13 0 0	53 0	52 10	24 0 30
C	0 20	51 20	53 0	59 10	12 59 30	52 10	51 30	0 0
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	5 46	5 41	5 36	5 33	5 29	5 26	5 22	5 17
	°	°	°	°	°	°	°	°
Temperature	62.7	62.7	62.8	62 8	62.2	62.2	62.2	62.2

Remarks.

The instrument has been repaired since the last observations. A new suspension thread for 3-inch magnet. Cloudy and windy.

SEPTEMBER 1, 1851.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
3 37 15.4					5 1 11.0				
27.7	12.3	4	64.0	119.0	23.3	12.3	4	67.5	115.0
40.0	12.3	4			35.7	12.4	4		
52.2	12.2	4			54.1	18.4	6		
38 4.5	12.3	4			2 6.5	12.4	4		
16.8	12.3	4			18.8	12.3	4		
29.2	12.4	4			31.2	12.4	4		
40 19.8	1 50.6	36			4 16.2	1 45.0	35		
43 24.5	3 4.7	60			7 21.2	3 5.0	60		

SEPTEMBER 1, 1851—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
3 46 29.1	3 4.6	60	. .	82.5	5 10 26.4	3 5.2	60	. .	87.5
49 33.7	3 4.6	60			13 31.5	3 5.1	60		
52 38.4	3 4.7	60			16 36.5	3 5.0	60		
50.7	12.3	4			48.8	12.3	4		
53 3.0	12.3	4			17 1.2	12.4	4		
15.2	12.2	4			13.6	12.4	4		
27.5	12.3	4			25.8	12.2	4		
39.8	12.3	4			38.2	12.4	4		
52.2	12.4	4			50.5	12.3	4	68.0	64.0
54 4.5	12.3	4	63.2	54.0					

Chronometer at 0h. mean time Santiago, + 3m. 55s.47, gaining daily 4s.44.

Scale reading for torsion.

Circle 90° E. . . . . 303.87 Circle 0° . . . . . 301.97 Circle 90° W. 300.38

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	137 44 50	122 38 0	133 38 10	126 45 50	126 46 50	133 39 10	122 41 0	137 47 20
B	47 30	41 10	40 50	48 30	49 30	42 0	44 30	50 0
C	47 0	40 20	40 30	48 0	49 0	41 20	43 30	49 10
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	4 54	4 49	4 45	4 40	4 35	4 31	4 26	4 22
	°	°	°	°	°	°	°	°
Temperature	67.5	67.5	67.0	67.0	66.7	66.7	66.5	66.5

SEPTEMBER 11, 1851.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 25 19.0					5 52 13.7				
31.3	12.3	4	57.5	108.0	26.1	12.4	4	59.5	104.0
43.7	12.4	4			38.4	12.3	4		
56.1	12.4	4			50.7	12.3	4		
26 8.4	12.3	4			53 3.1	12.4	4		
20.7	12.3	4			15.4	12.3	4		
33.0	12.3	4			27.7	12.3	4		
28 23.8	1 50.0	36			55 18.7	1 51.0	36		
31 28.5	3 4.7	60			58 23.7	3 5.0	60		
34 33.4	3 4.9	60	. .	70.0	6 1 28.6	3 4.9	60	. .	75.0

SEPTEMBER 11, 1851—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 37 38.3	3 4.9	60			6 4 33.6	3 5.0	60		
40 43.0	3 4.7	60			7 38.6	3 5.0	60		
55.4	12.4	4			50.9	12.3	4		
41 7.7	12.3	4			8 3.2	12.3	4		
20.0	12.3	4			15.5	12.3	4		
32.3	12.3	4			27.8	12.3	4		
44.5	12.2	4			40.2	12.4	4		
56.9	12.4	4			52.5	12.3	4		
42 9.2	12.3	4	57.5	50.0	9 4.8	12.3	4	59.8	51.0

Chronometer at 0h. mean time Santiago, + 4m. 28s.39, gaining daily 3s.29.

Scale reading for torsion.

Circle 90° E. . . . . 299.57 Circle 0° . . . . . 296.06 Circle 90° W. 296.77

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	93 34 40	78 23 40	89 26 10	82 32 0	82 33 0	89 26 30	78 26 10	93 32 30
B	37 30	26 40	29 10	35 20	36 20	29 30	28 40	35 40
C	37 0	25 30	28 20	34 10	35 10	28 30	28 10	34 50
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	5 37	5 34	5 29	5 26	5 23	5 20	5 15	5 11
	°	°	°	°	°	°	°	°
Temperature	59.4	59.4	59.0	59.0	58.7	58.7	58.0	58.0

SEPTEMBER 24, 1851.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 4 51.5					5 28 25.5				
5 3.8	12.3	4	59.5	114.0	37.9	12.4	4	60.5	125.0
16.2	12.4	4			50.2	12.3	4		
28.6	12.4	4			29 2.5	12.3	4		
40.8	12.2	4			14.8	12.3	4		
53.1	12.3	4			27.2	12.4	4		
6 5.4	12.3	4			39.5	12.3	4		
7 56.3	1 50.9	36			31 30.5	1 51.0	36		
11 1.1	3 4.8	60			34 35.7	3 5.2	60		
14 5.9	3 4.8	60	. .	81.0	37 40.7	3 5.0	60	. .	87.0

SEPTEMBER 24, 1851—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 17 11.0	3 5.1	60			5 40 45.7	3 5.0	60		
20 15.7	3 4.7	60			43 44.6	2 58.9	58		
28.0	12.3	4			56.8	12.2	4		
40.3	12.3	4			44 9.2	12.4	4		
52.6	12.3	4			21.5	12.3	4		
21 4 9	12.3	4			33.8	12.3	4		
17.2	12.3	4			46.2	12.4	4		
29.5	12.3	4			58.5	12.3	4		
41.9	12.4	4	60.0	48.0	45 10.8	12.3	4	61.0	58.0

Chronometer at 0h. mean time Santiago, + 5m. 28s.85, gaining daily 4s.06.

Scale reading for torsion.

Circle 90° E. . . . . 303.16 Circle 0° . . . . . 301.22 Circle 90° W. 300.62

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	148 55 30	133 50 30	144 49 0	137 57 10	137 55 30	144 50 30	133 44 30	149 0 20
B	59 0	54 0	52 10	138 0 10	58 30	54 20	47 50	3 50
C	58 20	53 10	51 30	59 30	57 50	53 20	47 0	3 0
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	5 13	5 10	5 4	5 1	4 58	4 55	4 50	4 47
	°	°	°	°	°	°	°	°
Temperature	60.7	60.7	61.0	61.0	61.3	61.3	61.5	61.5

Remarks.

Rate of chronometer brought forward from September 1.

OCTOBER 1, 1851.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
3 51 0.3					5 10 19.1				
12.6	12.3	4	57.0	109.0	31.4	12.3	4	60.0	96.0
24.9	12.3	4			43.7	12.3	4		
37.2	12.3	4			56.0	12.3	4		
49.6	12.4	4			11 8.4	12.4	4		
52 1.9	12.3	4			20.7	12.3	4		
14.2	12.3	4			33.1	12.4	4		
54 5.2	1 51.0	36			13 24.2	1 51.1	36		
57 10.2	3 5.0	60			16 29.3	3 5.1	60		

OCTOBER 1, 1851—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 0 15.1	3 4.9	60	. .	82.3	5 19 34.4	3 5.1	60	. .	71.2
3 20.1	3 5.0	60			22 39.5	3 5.1	60		
6 25.0	3 4.9	60			25 44.6	3 5.1	60		
37.3	12.3	4			56.9	12.3	4		
49.6	12.3	4			26 9.3	12.4	4		
7 1.9	12 3	4			21.6	12.3	4		
14 2	12.3	4			34.0	12.4	4		
26.5	12.3	4			46 3	12.3	4		
38.9	12.4	4			58.6	12.3	4		
51.2	12.3	4	57.5	54.2	27 10.9	12.3	4	58.5	48.0

Chronometer at 0h. mean time Santiago + 5m. 58s.89, gaining daily 4s.29.

Scale reading for torsion.

Circle 90° E. . . . 304.57 Circle 0° . . . . . 302.75 Circle 90° W. 301.94

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	147 9 0	132 1 40	143 0 40	136 8 20	136 6 0	143 0 30	131 58 50	147 9 40
B	11 50	5 0	4 10	11 20	9 0	3 40	132 1 30	13 0
C	11 20	4 20	3 40	10 40	8 20	3 20	1 20	12 10
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	4 56	4 52	4 48	4 45	4 42	4 38	4 33	4 30
	°	°	°	°	°	°	°	°
Temperature	58.8	58.8	59.0	59.0	59.7	59.7	59.7	59.7

OCTOBER 11, 1851.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
3 44 28.7					5 11 5.1				
41.1	12.4	4	53.5	104.5	17.4	12.3	4	56.5	147.0
53.4	12.3	4			29.7	12.3	4		
45 5.7	12.3	4			42.1	12.4	4		
18.1	12.4	4			54.4	12.3	4		
30.4	12.3	4			12 6.7	12.3	4		
42.7	12.3	4			19.1	12.4	4		
47 33.6	1 50.9	36			14 10.1	1 51.0	36		
50 38.5	3 4.9	60			17 14.9	3 4.8	60		
53 43.3	3 4.8	60	. .	76.5	20 19.8	3 4.9	60	. .	110.0

OCTOBER 11, 1851—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
3 56 48.3	3 5.0	60			5 23 24.7	3 4.9	60		
59 53.2	3 4.9	60			26 29.6	3 4.9	60		
4 0 5.5	12.3	4			41.9	12.3	4		
17.1	11.6	4			54.3	12.4	4		
30.1	13.0	4			27 6.6	12.3	4		
42.4	12.3	4			18.9	12.3	4		
54.7	12.3	4			31.3	12.4	4		
1 7.0	12.3	4			43.6	12.3	4		
20.4	13.4	4	54.5	53.0	55.9	12.3	4	55.7	74.0

Chronometer at 0h. mean time Santiago, + 6m. 43s.95, gaining daily 4s.51.

Scale reading for torsion.

Circle 90° E. . . . . 302.72 Circle 0° . . . . . 301.28 Circle 90° W. 300.0

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	115 31 40	100 27 30	111 25 30	104 33 30	104 32 0	111 28 0	100 21 50	115 36 0
B	35 20	30 20	28 50	36 50	34 40	31 0	24 20	39 0
C	34 20	29 30	28 10	35 40	34 20	29 50	24 10	38 30
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	4 54	4 50	4 46	4 43	4 38	4 34	4 29	4 25
	°	°	°	°	°	°	°	°
Temperature	57.0	57.0	56.7	56.7	56.5	56.5	60.7	60.7

Remarks.

A new suspension thread for the 3-inch magnet.

OCTOBER 22, 1851.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
3 48 44.1					5 2 17.4				
56.4	12.3	4	66.0	130.0	29.8	12.4	4	69.3	125.0
49 8.7	12.3	4			42.1	12.3	4		
21.1	12.4	4			54.5	12.4	4		
33.4	12.3	4			3 6.9	12.4	4		
45.7	12.3	4			19.2	12.3	4		
58.1	12.4	4			31.6	12.4	4		
51 49.2	1 51.1	36			5 22.7	1 51.1	36		
54 54.4	3 5.2	60			8 28.2	3 5.5	60		
57 59.6	3 5.2	60	. .	97.0	11 33.6	3 5.4	60	. .	97.5

OCTOBER 22, 1851—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 1 4.7	3 5.1	60			5 14 38.8	3 5.2	60		
4 9.9	3 5.2	60			17 44.2	3 5.4	60		
22.2	12.3	4			56.5	12.3	4		
34.5	12.3	4			18 8.8	12.3	4		
46.8	12.3	4			21.1	12.3	4		
59.2	12.4	4			33.5	12.4	4		
5 11.5	12.3	4			45.8	12.3	4		
23.8	12.3	4			58.1	12.3	4		
36.2	12.4	4	67.5	68.0	19 10.5	12.4	4	71.0	68.5

Chronometer at 0h. mean time Santiago, + 7m. 33s.52, gaining daily 4s.51.

Scale reading for torsion.

Circle 90° E. . . . . 303.96 Circle 0° . . . . . 302.75 Circle 90° W. 302.69

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	180 9 30	165 3 0	176 2 40	169 10 10	169 10 30	176 2 20	165 3 0	180 10 40
B	12 40	6 20	5 50	13 40	13 50	6 0	6 20	14 20
C	12 0	5 40	5 20	13 0	13 0	5 0	5 40	13 10
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	4 53	4 49	4 45	4 42	4 38	4 35	4 31	4 27
	°	°	°	°	°	°	°	°
Temperature	69.2	69.2	68.8	68.8	68.8	68.8	68.8	68.8

Remarks.

A new suspension thread for the 3.67-inch magnet.

NOVEMBER 1, 1851.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
3 47 57.9					5 13 44.7				
48 10.3	12.4	4	69.0	119.0	57.0	12.3	4	71.5	94.0
22.6	12.3	4			14 9.4	12.4	4		
35.0	12.4	4			21.8	12.4	4		
47.4	12.4	4			34.1	12.3	4		
59.7	12.3	4			46.5	12.4	4		
49 12.1	12.4	4			58.8	12.3	4		
51 3.2	1 51.1	36			16 50.0	1 51.2	36		
54 8.5	3 5.3	60			19 55.4	3 5.4	60		

NOVEMBER 1, 1851—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
3 57 13.8	3 5.3	60	. .	88.0	5 23 0.7	3 5.3	60	. .	70.5
4 0 19.1	3 5.3	60			26 6.0	3 5.3	60		
3 24.5	3 5.4	60			29 11.4	3 5.4	60		
36.8	12.3	4			23.7	12.3	4		
49.1	12.3	4			36.0	12.3	4		
4 1.5	12.4	4			48.4	12.4	4		
13.7	12.2	4			30 0.7	12.3	4		
26.2	12.5	4			13.0	12.3	4		
38.5	12.3	4			25.4	12.4	4		
50.9	12.4	4	69.8	59.0	37.7	12.3	4	72.0	49.0

Chronometer at 0h. mean time Santiago, + 8m. 23s.20, gaining daily 4s.73.

Scale reading for torsion.

Circle 90° E. . . . . 299.08 Circle 0° . . . . . 298.39 Circle 90° W. 297.88

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ′
A	234 23 30	219 18 40	230 16 30	223 25 10	223 25 0	230 16 40	219 18 10	234 23 0
B	26 20	21 20	19 20	28 0	27 50	19 20	21 0	25 50
C	25 50	21 0	18 40	27 30	27 30	18 40	20 40	25 10
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	4 58	4 53	4 48	4 46	4 43	4 40	4 34	4 29
Temperature	° 71.3	° 71.3	° 71.3	° 71.3	° 71.3	° 71 3	° 71.0	° 71.0

Remarks.

Used a two-fibre suspension thread for the 3.67-inch magnet, instead of a four-fibre, as in last observations. Wind strong, and jarring instrument in the vibration experiments.

NOVEMBER 11, 1851.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 21 20.4					6 39 1.1				
33.8	12.4	4	62.8	129.0	13.4	12.3	4	64.0	91.0
45.1	12.3	4			25.7	12.3	4		
57.4	12.3	4			38.0	12.3	4		
22 9.7	12.3	4			50.4	12.4	4		
22.1	12.4	4			40 2.7	12.3	4		

NOVEMBER 11, 1851—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 22 34.4	12.3	4			6 40 15.1	12.4	4		
24 25.6	1 51.2	36			42 6.3	1 51.2	36		
27 30.7	3 5.1	60			45 11.4	3 5.1	60		
30 35.8	3 5.1	60	. .	88.0	48 16.8	3 5.4	60	. .	67.3
33 40.9	3 5.1	60			51 22.0	3 5.2	60		
36 46.0	3 5.1	60			54 27.2	3 5.2	60		
58.3	12.3	4			39.6	12.4	4		
37 10.6	12.3	4			51.9	12.3	4		
23.0	12.4	4			55 4.3	12.4	4		
35.2	12.2	4			16.6	12.3	4		
47.6	12.4	4			29.0	12.4	4		
59.9	12.3	4			41.3	12.3	4		
38 12.2	12.3	4	63.2	60.5	53.6	12.3	4	64.5	47.0

Chronometer at 0h. mean time Santiago, + 9m. 5s.73, gaining daily 4s.73.

Scale reading for torsion.

Circle 90° E. . . . . 303.05 Circle 0° . . . . . 302.30 Circle 90° W. 301.78

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and fifteen hundredths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ″
A	. .	. .	151 58 20	142 3 0	142 3 10	151 59 30		
B	. .	. .	1 20	5 30	5 50	152 2 0		
C	. .	. .	0 40	5 30	5 40	1 30		
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	. .	. .	6 27	6 21	6 16	6 12		
	°	°	°	°	°	°	°	°
Temperature	. .	. .	64.0	64.0	64.0	64.0		

Remarks.

A new suspension thread for the 3.67-inch magnet. Passing clouds, threatening rain, with strong puffs of wind.

NOVEMBER 28, 1851.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
3 43 1.7					5 8 12.0				
14.0	12.3	4	69.7	167.0	24.4	12.4	4	73.5	199.0
26.4	12.4	4			36.7	12.3	4		
38.7	12.3	4			49.2	12.5	4		
51.0	12.3	4			9 1.6	12.4	4		
44 3.4	12.4	4			13.9	12.3	4		
15.7	12.3	4			26.3	12.4	4		

NOVEMBER 28, 1851—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
3 46 6.9	1 51.2	36			5 11 17.5	1 51.2	36		
49 12 2	3 5 3	60			14 23.1	3 5.6	60		
52 17.4	3 5 2	60	. .	121.0	17 28.6	3 5.5	60	. .	147.0
55 22.7	3 5.3	60			20 34.0	3 5.4	60		
58 28.1	3 5.4	60			23 39.6	3 5.6	60		
40.5	12.4	4			51.9	12.3	4		
52 8	12.3	4			24 4.3	12.4	4		
59 5.2	12.4	4			16.7	12.4	4		
17.5	12.3	4			29.0	12.3	4		
29.8	12.3	4			41.3	12.3	4		
42.2	12.4	4			53.7	12.4	4		
54.5	12.3	4	70.2	84.0	25 6.0	12.3	4	73.5	105.0

Chronometer at 0h. mean time Santiago, + 10m. 34s.13, gaining daily 5s.20.

Scale reading for torsion.

Circle 90° E. . . . . 302.40 Circle 0° . . . . . 300.02 Circle 90° W. 297.88

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	159 57 10	144 55 40	155 51 20	149 0 40	149 0 20	155 51 30	144 53 50	159 58 0
B	160 0 30	59 0	54 50	4 20	4 0	55 0	57 30	160 1 20
C	159 59 40	58 10	54 0	3 20	3 0	54 10	56 0	0 30
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	4 53	4 47	4 44	4 40	4 37	4 34	4 29	4 25
	°	°	°	°	°	°	°	°
Temperature	72.5	72.5	72.3	72.3	72.2	72.2	71.0	71.0

Remarks.

Used a double thread of four fibres.

DECEMBER 1, 1851.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 46 6.0					6 0 9.8				
18 3	12.3	4	81.5	180.0	22 2	12.4	4	84.0	111.0
30.7	12.4	4			34.6	12.4	4		
43.0	12.3	4			46.9	12.3	4		
55.5	12.5	4			59.4	12.5	4		
47 7.8	12.3	4			1 11.8	12.4	4		
20.2	12.4	4			24.2	12.4	4		
49 11.6	1 51.4	36			3 15.7	1 51.5	36		

DECEMBER 1, 1851—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 52 17.2	3 5.6	60	. .	134.0	6 6 21.5	3 5.8	60	. .	85.0
55 22.9	3 5.7	60			9 27.2	3 5.7	60		
58 28.5	3 5.6	60			12 33.2	3 6.0	60		
5 1 34.2	3 5.7	60			15 39.1	3 5.9	60		
46.6	12.4	4			51.5	12.4	4		
58.9	12.3	4			16 3.8	12 3	4		
2 11.3	12.4	4			16.2	12.4	4		
23.6	12.3	4			28.6	12.4	4		
36.0	12.4	4			40.9	12.3	4		
48.4	12.4	4			53.4	12.5	4		
3 0.7	12.3	4	81.8	94.0	17 5.8	12.4	4	84.0	53.0

Chronometer at 0h. mean time Santiago, + 10m. 49s.73, gaining daily 5s.20.

Scale reading for torsion.

Circle 90° E. . . . . 301.38 Circle 0° . . . . . 300.50 Circle 90° W. 299.62

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	0.77 foot.		One foot.				0.77 foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	165 59 30	132 48 40	156 53 20	141 53 40	141 54 40	156 53 30	132 52 40	165 56 20
B	166 3 30	51 20	57 0	57 20	57 20	57 0	55 0	58 50
C	2 0	50 50	56 20	56 20	57 0	56 10	55 10	58 40
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	5 50	5 44	5 40	5 36	5 33	5 29	5 25	5 21
	°	°	°	°	°	°	°	°
Temperature	83.5	83.5	83.7	83.7	83.5	83.5	83.3	83.3

Remarks.

Instrument not well sheltered from the sun, and occasionally jarred by a smart breeze. Used a shorter distance for deflection.

DECEMBER 11, 1851.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 21 7.1					6 29 36.9				
19 5	12.4	4	64.0	131.0	49.3	12.4	4	66.5	198.0
31.8	12.3	4			30 1.7	12.4	4		
44.2	12.4	4			14.0	12.3	4		
56.6	12.4	4			26 3	12.3	4		
22 8.9	12.3	4			38.8	12.5	4		
21.3	12.4	4			51.2	12.4	4		
24 12.6	1 51.3	36			32 42.5	1 51.3	36		
27 18.0	3 5.4	60			35 47.9	3 5.4	60		

DECEMBER 11, 1851—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 30 23.3	3 5.3	60	. .	94.7	6 38 53.5	3 5.6	60	. .	93.5
33 28.7	3 5.4	60			41 58.9	3 5 4	60		
36 34.2	3 5.5	60			45 4.4	3 5.5	60		
46.5	12.3	4			16.7	12.3	4		
58.8	12.3	4			29.1	12.4	4		
37 11.2	12.4	4			41.5	12.4	4		
23.6	12.4	4			53.8	12.3	4		
35.9	12.3	4			46 6.2	12.4	4		
48.3	12.4	4			18.6	12.4	4		
38 0.6	12.3	4	65.0	64.3	30.9	12.3	4	66.0	66.0

Chronometer at 0h. mean time Santiago, + 11m. 36s.10, gaining daily 4s.76.

Scale reading for torsion.

Circle 90° E. . . . . 304.62 Circle 0° . . . . . 303.75 Circle 90° W. 303.21

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and fifteen-hundredths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	, .	. .	136 27 10	146 21 20	146 22 0	136 27 0		
B	, .	. .	30 0	24 50	25 20	30 0		
C	. .	. .	29 30	24 0	24 30	29 20		
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	. .	. .	6 10	6 7	6 2	5 58		
	°	°	°	°	°	°	°	°
Temperature	. .	. .	65.5	65.5	66.7	67.7		

Remarks.

Weather foggy.

DECEMBER 24, 1851.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 52 1.3					6 23 32.1				
13.7	12.4	4	70.5	117.5	44.4	12.3	4	72.2	196.0
26.0	12.3	4			56.8	12.4	4		
38.4	12.4	4			24 9.2	12 4	4		
50.7	12.3	4			21.6	12.4	4		
53 3.1	12.4	4			33.9	12.3	4		
15.4	12.3	4			46.3	12.4	4		
55 6.9	1 51.5	36			26 37.8	1 51.5	36		
58 12.6	3 5.7	60			29 43.6	3 5.8	60		

DECEMBER 24, 1851—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 1 18.3	3 5.7	60	. .	83.0	6 32 49.3	3 5.7	60	. .	144.0
4 23.9	3 5.6	60			35 55.2	3 5.9	60		
7 29.7	3 5.8	60			39 1.0	3 5.8	60		
42.1	12.4	4			13.3	12.3	4		
54.4	12.3	4			25.7	12.4	4		
8 6.7	12.3	4			38.1	12.4	4		
19.1	12.4	4			50 5	12 4	4		
31.5	12.4	4			40 2.8	12.3	4		
43.9	12.4	4			15.2	12.4	4		
56.2	12.3	4	71.3	58.8	27.6	12.4	4	72.7	96.0

Chronometer at 0h. mean time Santiago, + 12m. 38s.07, gaining daily 4s.77.

Scale reading for torsion.

Circle 90° E. . . . . 302.50 Circle 0° . . . . . 301.58 Circle 90° W. 301.00

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	88 25 10	73 23 10	84 18 50	77 29 0	77 28 40	84 18 20	73 20 0	88 26 0
B	28 20	26 40	21 40	32 0	31 50	21 30	23 30	29 10
C	27 10	25 30	20 50	31 0	30 40	20 30	22 20	28 10
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	6 5	5 58	5 53	5 49	5 44	5 39	5 33	5 28
	°	°	°	°	°	°	°	°
Temperature	71.5	71.5	71.3	71.3	70.7	70.7	70.3	70.3

Remarks.

A strong breeze blowing, which continually jarred the magnets.

JANUARY 1, 1852.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 9 40.0					6 26 41.2				
52.4	12.4	4	82.0	113.0	53.6	12.4	4	84.5	113.0
10 4.8	12.4	4			27 6.0	12.4	4		
17.2	12.4	4			18.9	12.9	4		
29.6	12.4	4			31.3	12.4	4		
41.9	12.3	4			43.7	12.4	4		
54.3	12.4	4			56.1	12.4	4		
12 45.7	1 51.4	36			29 47.2	1 51.1	36		

JANUARY 1, 1852—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 15 51.4	3 5.7	60			6 32 53.1	3 5.9	60		
18 57.3	3 5.9	60	. .	79.0	35 59.2	3 6.1	60	. .	86.0
22 3.2	3 5.9	60			39 5.2	3 6.0	60		
25 8 9	3 5.7	60			42 11.2	3 6.0	60		
21.3	12.4	4			23.5	12.3	4		
33.7	12.4	4			35.9	12.4	4		
46.1	12.4	4			48.4	12.5	4		
58.5	12.4	4			43 0.7	12.3	4		
26 10.9	12.4	4			13.1	12.4	4		
23.2	12.3	4			25.5	12.4	4		
35.6	12.4	4	82.7	53.0	38.0	12.5	4	85.0	60.0

Chronometer at 0h. mean time Santiago, + 13m. 16s.20, gaining daily 4s.77.

Scale reading for torsion.

Circle 90° E. . . . . 302.17 Circle 0° . . . . . 301.37 Circle 90° W. 300.38

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and fifteen hundredths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	. .	. .	36 7 30	26 18 20	26 18 30	36 6 20		
B	. .	. .	10 20	20 40	21 20	9 0		
C	. .	. .	9 50	20 0	20 10	8 20		
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	. .	. .	6 16	6 9	6 1	5 55		
	°	°	°	°	°	°	°	°
Temperature	. .	. .	84.2	84.5	83.7	83.2		

JANUARY 12, 1852.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 25 28.9					6 14 50.9				
41.2	12.3	4	68.8	114.0	15 3.3	12.4	4	72.2	115.0
53.7	12 5	4			15.7	12.4	4		
26 6.1	12.4	4			28.1	12.4	4		
18.4	12.3	4			40.4	12 3	4		
30.8	12.4	4			52.8	12.4	4		
43.1	12.3	4			16 5.2	12.4	4		
28 34.4	1 51.3	36			17 56.6	1 51.4	36		
31 40.0	3 5.6	60			21 2.4	3 5.8	60		
34 45.7	3 5.7	60	. .	80.0	24 8.2	3 5.8	60	. .	81.0

JANUARY 12, 1852—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 37 51.4	3 5.7	60			6 27 14.0	3 5.8	60		
40 57.0	3 5.6	60			30 19.7	3 5.7	60		
41 9.4	12.4	4			32.1	12.4	4		
21.7	12 3	4			44 5	12.4	4		
34 0	12.3	4			56.8	12 3	4		
46.4	12.4	4			31 9.2	12.4	4		
58.7	12.3	4			21.6	12.4	4		
42 11.1	12.4	4			34.0	12.4	4		
23.5	12.4	4	67.7	56.0	46.4	12.4	4	73.8	60.0

Chronometer at 0h. mean time Santiago, + 14m. 9s.62, gaining daily 4s.86.

Scale reading for torsion.

Circle 90° E. . . . . 298.40 Circle 0° . . . . . 297.80 Circle 90° W. 297.06

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	268 16 50	253 20 20	264 13 0	257 25 30	257 25 20	264 15 40	253 20 30	268 22 30
B	19 50	23 10	16 10	28 50	28 50	18 30	23 50	25 50
C	18 40	22 40	15 30	27 40	27 30	17 20	23 0	24 40
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	6 2	5 57	5 47	5 42	5 36	5 30	5 22	5 18
	°	°	°	°	°	°	°	°
Temperature	73.0	73.0	73.0	73.0	72.5	72.5	72.3	72.3

Remarks.

A new thread for the 3-inch magnet. Passing clouds.

JANUARY 21, 1852.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 8 11.5					6 25 15.9				
23.8	12.3	4	79.5	117.0	28.3	12.4	4	81.5	114.0
36.2	12.4	4			40.7	12.4	4		
48.7	12.5	4			53.2	12.5	4		
9 1.0	12.3	4			26 5.6	12.4	4		
13.4	12.4	4			18.0	12.4	4		
25.8	12.4	4			30.3	12.3	4		
11 17.5	1 51.7	36			28 22.2	1 51.9	36		
14 23.7	3 6.2	60			31 28.4	3 6.2	60		
17 29.8	3 6.1	60	. .	87.0	34 34.8	3 6.4	60	. .	86.0

JANUARY 21, 1852—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 20 35.9	3 6.1	60			6 37 41.1	3 6.3	60		
23 42.1	3 6.2	60			40 47.4	3 6.3	60		
54.5	12.4	4			59.7	12.3	4		
24 6.9	12.4	4			41 12.2	12.5	4		
19.2	12.3	4			24.5	12.3	4		
31.7	12.5	4			37.0	12.5	4		
44.2	12.5	4			49.4	12.4	4		
56.6	12.4	4			42 1.8	12.4	4		
25 8.9	12.3	4	79.5	60 0	14.2	12.4	4	81.7	61.0

Chronometer at 0h. mean time Santiago, + 14m. 53s.33, gaining daily 4s.86.

Scale reading for torsion.

Circle 90° E. . . . . 300 30 Circle 0° . . . . . 299.50 Circle 90° W. 298.55

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and fifteen hundredths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	. .	. .	255 40 30	245 50 50	245 51 30	255 43 20		
B	. .	. .	43 30	53 50	54 10	46 20		
C	. .	. .	43 10	53 10	53 50	45 40		
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	. .	. .	6 11	6 3	5 57	5 50		
	°	°	°	°	°	°	°	°
Temperature	. .	. .	81.0	81.0	81.0	81.0		

Remarks.

From 6h to. 6h. 10m. the magnet acted very singularly, occasionally flying off to the right or left ten entire divisions. A breeze was blowing at the time, which at intervals jarred the instrument; but it has never before produced such effect, nor did it appear to be the cause then, for the oscillations sometimes occurred when it was comparatively calm. Occasional passing cumuli.

FEBRUARY 2, 1852.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 15 26.2					6 42 13.3				
38.6	12.4	4	82.2	119.0	25.7	12.4	4	85.0	103.0
50.9	12.3	4			38.1	12.4	4		
16 3.3	12.4	4			50 6	12.5	4		
15.8	12.5	4			43 2.9	12.3	4		
28.2	12.4	4			15.3	12.4	4		
40.6	12 4	4			27.8	12.5	4		
18 32.4	1 51.8	36			45 19.6	1 51 8	36		

FEBRUARY 2, 1852—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 21 38.4	3 6.0	60			6 48 25.9	3 6.3	60		
24 44 6	3 6 2	60	. .	86.0	51 32.3	3 6.4	60	. .	77.0
27 50 7	3 6.1	60			54 38.6	3 6.3	60		
30 56.8	3 6.1	60			57 45.0	3 6.4	60		
31 9.2	12.4	4			57.4	12.4	4		
21.7	12.5	4			58 9.8	12.4	4		
34.0	12.3	4			22.2	12.4	4		
46.5	12 5	4			34.6	12.4	4		
58.9	12.4	4			47.0	12.4	4		
32 21.2	12.3	4			59.5	12.5	4		
23.7	12.5	4	83.0	58 0	59 12.0	12.5	4	84.8	55.0

Chronometer at 0h. mean time Santiago, + 15m. 56s.25, gaining daily 5s.13.

Scale reading for torsion.

Circle 90° E. . . . . 301.77 Circle 0° . . . . . 300.90 Circle 90° W. 300.10

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	247 12 30	232 15 40	243 7 40	236 20 10	236 20 30	243 7 40	232 17 10	247 11 50
B	15 50	17 50	10 20	23 10	23 10	10 40	20 0	14 50
C	15 0	18 0	10 10	22 30	22 50	10 20	19 30	14 10
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	6 32	6 28	6 23	6 20	6 16	6 13	6 8	6 4
	°	°	°	°	°	°	°	°
Temperature	84.7	84.7	84.0	84.0	83.3	83 3	83.3	83.3

FEBRUARY 11, 1852.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 5 9.2					5 15 3.5				
21.6	12.4	4	77.7	113.0	16 0	12.5	4	80.7	121.0
34.0	12.4	4			28.3	12.3	4		
46.4	12.4	4			40.7	12.4	4		
58.7	12.3	4			53.2	12.5	4		
6 11.2	12.5	4			16 5.5	12.3	4		
23.5	12.3	4			18.0	12.5	4		
8 15.2	1 51.7	36			18 9.7	1 51.7	36		
11 21.4	3 6.2	60			21 16.0	3 6.3	60		

FEBRUARY 11, 1853—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 14 27.5	3 6.1	60	. .	78.5	5 24 22.3	3 6.3	60	. .	91.5
17 33.6	3 6.1	60			27 28.6	3 6.3	60		
20 39.7	3 6.1	60			30 34.8	3 6.2	60		
52.1	12.4	4			47.2	12.4	4		
21 4.5	12.4	4			59.6	12.4	4		
16.9	12.4	4			31 12.0	12.4	4		
29.2	12.3	4			24.4	12.4	4		
41.7	12.5	4			36.9	12.5	4		
54.0	12.3	4			49.3	12.4	4		
22 6.5	12.5	4	79.0	50.0	32 1.6	12.3	4	80.2	62 8

Chronometer at 0h. mean time Santiago, + 16m. 43s.20, gaining daily 5s.22.

Scale reading for torsion.

Circle 90° E. . . . . 299.81 Circle 0° . . . . . 298.60 Circle 90° W. 297.85

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	278 53 10	263 55 30	274 47 50	268 0 0	268 0 0	274 47 50	263 57 40	278 50 20
B	56 10	58 50	50 20	3 20	3 30	50 30	264 0 10	53 10
C	55 20	57 50	50 0	2 20	2 40	50 0	263 59 40	52 30
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	5 5	5 2	4 57	4 54	4 51	4 48	4 43	4 40
	°	°	°	°	°	°	°	°
Temperature	80.2	80.2	80.3	80.3	79.5	79.5	79.5	79.5

FEBRUARY 27, 1853.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 35 40 8					5 55 94.4				
53.2	12.4	4	80.0	87.0	36.9	12.5	4	82.8	129.0
36 5.7	12.5	4			49.4	12.5	4		
18.1	12.4	4			56 1.8	12.4	4		
30.5	12.4	4			14.2	12.4	4		
42.9	12.4	4			26.7	12.5	4		
55.3	12.4	4			39.1	12.4	4		
38 47.3	1 52.0	36			58 31.2	1 52.1	36		
41 53.7	3 6.4	60			6 1 37.8	3 6.6	60		

FEBRUARY 27, 1852—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 45 0.2	3 6.5	60	. .	63.0	6 4 44.4	3 6.6	60	. .	99.0
48 6.7	3 6.5	60			7 51.2	3 6.8	60		
51 13.4	3 6.7	60			10 57.8	3 6.6	60		
25.7	12.3	4			11 10.2	12.4	4		
38.2	12.5	4			22.6	12.4	4		
50.7	12.5	4			35.1	12.5	4		
52 3.1	12.4	4			47.6	12.5	4		
15.5	12.4	4			12 0.1	12.5	4		
27.9	12.4	4			12.5	12.4	4		
40.3	12.4	4	81.5	42.0	24.9	12.4	4	83.0	69.5

Chronometer at 0h. mean time Santiago, + 17m. 55s.52, gaining daily 4s.52.

Scale reading for torsion.

Circle 90° E. . . . . 300.84 Circle 0° . . . . . 299.95 Circle 90° W. 299.17

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	170 48 20	185 47 40	174 52 50	181 40 40	181 40 0	174 53 40	185 43 10	170 50 20
B	51 10	50 10	55 40	44 0	42 50	56 20	45 50	53 10
C	50 30	49 50	55 10	43 0	42 0	56 0	45 20	53 10
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	4 46	4 42	4 35	4 30	4 27	4 23	4 18	4 15
	°	°	°	°	°	°	°	°
Temperature	82.7	82.7	82.5	82.5	83.0	83.0	83.0	83.0

MARCH 1, 1852.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		° °	Div.	h. m. s.	m. s.		°	Div.
3 51 1.6					4 56 39.0				
14.0	12.4	4	67.0	126.0	51.4	12.4	4	71.5	113.5
26.5	12.5	4			57 3 8	12.4	4		
38.8	12.3	4			16.2	12.4	4		
51.3	12.5	4			28.7	12.5	4		
52 3.7	12.4	4			41.0	12.3	4		
16.2	12.5	4			53.4	12.4	4		
54 7.9	1 51.7	36			59 45.5	1 52.1	36		
57 14.2	3 6.3	60			5 2 51.9	3 6.4	60		

MARCH 1, 1852—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 0 20.5	3 6.3	60			5 5 58.4	3 6.5	60	. .	86.7
3 26.7	3 6.2	60			9 4.8	3 6.4	60		
6 33.1	3 6.4	60			12 11.2	3 6.4	60		
45.5	12.4	4			23.7	12.5	4		
57.9	12.4	4			36.1	12.4	4		
7 10.3	12.4	4			48.5	12.4	4		
22.7	12.4	4			13 0.9	12.4	4		
35.2	12.5	4			13.3	12.4	4		
47.6	12.4	4			25.7	12.4	4		
8 0.0	12.4	4	69 0	61.5	38.2	12.5	4	72.5	62.5

Chronometer at 0h. mean time Santiago, + 18m. 9s.08, gaining daily 4s.52.

Scale reading for torsion.

Circle 90° E. . . . . 299.75 Circle 0° . . . . . 298.71 Circle 90° W. 297.95

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and fifteen-hundredths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	. .	. .	92 36 40	82 44 20	82 45 30	92 34 0		
B	. .	. .	39 40	47 10	48 10	37 0		
C	. .	. .	38 40	46 40	48 0	36 10		
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	. .	. .	4 45	4 41	4 36	4 32		
	°	°	°	°	°	°	°	°
Temperature	. .	. .	71.0	71.0	70.0	70.0		

Remarks.

A new thread for the 3-inch magnet.

MARCH 11, 1852.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
10 5 51.4					11 55 8.3				
6 3.6	12.2	4	69.8	126.0	20.7	12.4	4	75.5	119.0
16.2	12.6	4			33.2	12.5	4		
28.4	12.2	4			45.6	12.4	4		
41.0	12.6	4			58.2	12.6	4		
53.5	12.5	4			56 10.6	12.4	4		
7 6.1	12.6	4			23.0	12.4	4		
8 52.0	1 45.9	36			58 9.0	1 46.0	36		
11 58.7	3 6.7 .	60			12 1 13.8	3 4.8	60		

MARCH 11, 1852—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
10 15 5.4	3 6.7	60	. .	88.0	12 4 22.9	3 9.1	60	. .	93.0
18 12.4	3 7.0	60			7 29.8	3 6.9	60		
21 19.8	3 7.4	60			10 36.8	3 7.0	60		
31.7	11.9	4			49.2	12.4	4		
44 2	12.5	4			11 1.6	12.4	4		
56.7	12.5	4			14.1	12.5	4		
22 9.2	12.5	4			26.5	12.4	4		
21.6	12.4	4			39.0	12.5	4		
34.1	12.5	4	70.1	53.0	51.5	12.5	4	75.5	63.0

Chronometer at 0h. mean time Santiago, + 1m. 24s.69, losing daily 0s.38.

Scale reading for torsion.

Circle 90° E. . . . . 302.40 Circle 0° . . . . . 300.00 Circle 90° W. 298 35

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	230 52 50	215 57 10	226 50 10	220 3 10	220 3 15	226 50 10	215 56 50	230 54 0
B	50 10	54 30	47 30	0 30	0 30	47 30	54 0	51 10
C	53 0	57 40	50 20	3 30	3 45	50 20	57 20	54 20
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	12 23	12 33	12 47	12 40	1 6	12 56	12 16	12 5
	°	°	°	°	°	°	°	°
Temperature	74.0	74.5	74.0	74.0	75.2	74.5	74.3	73.2

Remarks.

The time was noted by sideral chronometer.

MARCH 24, 1852.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 13 9.1					6 27 11.3				
21.5	12.4	4	69.0	109.5	23.8	12.5	4	70.3	126.5
33.9	12.4	4			36.2	12.4	4		
46 4	12.5	4			48.6	12.4	4		
58.7	12.3	4			28 1.0	12.4	4		
14 11.2	12.5	4			13.4	12 4	4		
23.7	12.5	4			25.8	12.4	4		
16 15.6	1 51.9	36			30 17.8	1 52.0	36		
19 22.0	3 6.4	60			33 24.4	3 6.6	60		

MARCH 24, 1852—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 22 28.4	3 6.4	60			6 36 31.0	3 6.6	60		
25 35 0	3 6.6	60	. .	80.5	39 37.5	3 6.5	60	. .	106.0
28 41.2	3 6.2	60			42 44.1	3 6.6	60		
53.7	12.5	4			56.5	12.4	4		
29 6.1	12.4	4			43 8.9	12.4	4		
18.6	12.5	4			21.4	12.5	4		
31.0	12.4	4			33.7	12.3	4		
43.5	12.5	4			46.1	12.4	4		
55.9	12.4	4			58.5	12.4	4		
30 8.3	12.4	4	67.8	54.2	44 11.0	12.5	4	71.0	66.0

Chronometer at 0h. mean time Santiago, + 19m. 28s.33, gaining daily 5s.33.

Scale reading for torsion.

Circle 90° E. . . . . 301.70 Circle 0° . . . . . 300.67 Circle 90° W. 299.78

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	58 59 50	44 4 40	54 55 20	48 8 30	48 8 40	54 54 40	44 4 0	59 0 0
B	59 3 0	8 0	58 40	11 20	11 40	57 50	6 50	2 50
C	2 0	7 20	57 50	11 10	11 20	56 50	6 20	2 30
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	6 18	6 14	6 9	6 5	6 2	5 58	5 54	5 50
	°	°	°	°	°	°	°	°
Temperature	70.0	70.0	70.0	69.7	69.2	68.8	68.8	69.0

Remarks.

Cloudy.

APRIL 1, 1852.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 3 23.7					6 32 12.1				
36.1	12.4	4	73.8	116.5	24.5	12.4	4	78.0	118.0
48.6	12.5	4			37.0	12.5	4		
4 1.0	12.4	4			49.5	12.5	4		
13.4	12.4	4			33 1.9	12.4	4		
25.8	12 4	4			14.4	12.5	4		
38.4	12.6	4			26.8	12.4	4		
6 30.3	1 51.9	36			35 18.9	1 52.1	36		
9 37.0	3 6.7	60			38 25.9	3 7.0	60		

APRIL 1, 1852—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 12 43.6	3 6.6	60	. .	77.0	6 41 32.8	3 6.9	60	. .	90.7
15 50.1	3 6.5	60			44 39.7	3 6.9	60		
18 56.8	3 6.7	60			47 46.7	3 7.0	60		
19 9.2	12.4	4			59.1	12.4	4		
21.6	12.4	4			48 11.5	12.4	4		
33 9	12.3	4			24.0	12.5	4		
46.4	12.5	4			36.5	12.5	4		
59.0	12.6	4			48.8	12.3	4		
20 11.4	12.4	4			49 1.4	12.6	4		
23.7	12.3	4	75.5	52.5	13.8	12.4	4	78.5	63.4

Chronometer at 0h. mean time Santiago, + 20m. 10s.95, gaining daily 5s.33.

Scale reading for torsion.

Circle 90° E. . . . . 300.49 Circle 0° . . . . . 299.54 Circle 90° W. 298.71

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	63 12 10	48 22 0	59 10 0	62 24 50	62 23 20	59 10 40	48 19 40	63 15 50
B	15 30	25 20	13 10	28 0	26 20	13 40	22 40	19 10
C	14 40	24 40	12 0	27 10	25 40	13 10	22 10	18 20
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	6 13	6 9	6 5	6 2	5 57	5 53	5 48	5 44
	°	°	°	°	°	°	°	°
Temperature	77.7	77.7	77.7	77.7	77.5	77.5	77.5	77.5

APRIL 12, 1852.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 52 37.0					5 55 42.2				
49.4	12.4	4	65.0	115.0	54.6	12.4	4	68.0	134.0
53 1.8	12.4	4			56 7.0	12.4	4		
14.2	12.4	4			19.4	12.4	4		
26.6	12.4	4			31.9	12.5	4		
39.0	12.4	4			44.3	12.4	4		
51.5	12.5	4			56.7	12.4	4		
55 43.4	1 51.9	36			58 48.9	1 52.2	36		
58 49.9	3 6.5	60			6 1 55.5	3 6.6	60		
5 1 56.3	3 6.4	60	. .	85.0	5 2.2	3 6.7	60	. .	102.0

APRIL 12, 1852—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 5 2.7	3 6.4	60			6 8 9.0	3 6.8	60		
8 9.2	3 6.5	60			11 15.6	3 6.6	60		
11 15.6	3 6.4	60			28.1/2	12.5	4		
14 22.2	3 6.6	60			40.5	12.4	4		
34.6	12.4	4			52.9	12.4	4		
47.0	12.4	4			12 5.5	12.6	4		
59.4	12.4	4			17.9	12.4	4		
15 11.9	12.5	4			30.3	12.4	4		
24.3	12.4	4			42.7	12.4	4	68.3	71.0
36.7	12.4	4							
49.1	12.4	4	66.0	47.7					

Chronometer at 0h. mean time Santiago, + 21m. 16s.95, gaining daily 5s.18.

Scale reading for torsion.

Circle 90° E . . . . 302.10 Circle 0° . . . . . 301.30 Circle 90° W. 300.39

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and fifteen-hundredths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	. .	. .	339 2 0	329 14 20	329 12 40	339 4 0		
B	. .	. .	5 0	17 50	16 10	7 0		
C	. .	. .	4 30	17 30	15 40	6 0		
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	. .	. .	5 43	5 39	5 35	5 31		
Temperature	° . .	° . .	° 67.7	° 67.7	° 67.7	° 67.0	°	°

Remarks.

An indifferent set of observations, in consequence of frequent interruptions. Occasional passing clouds.

APRIL 21, 1852.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 19 25.1					6 49 5.3				
37.5	12.4	4	68.5	124.0	17.7	12.4	4	67.0	110.0
49.9	12.4	4			30.1	12.4	4		
20 2.4	12.5	4			42 6	12.5	4		
14.8	12.4	4			55.1	12.5	4		
27.2	12.4	4			50 7.5	12.4	4		
39.7	12.5	4			19.9	12.4	4		
22 31.8	1 52.1	36			52 12.1	1 52.2	36		

APRIL 21, 1852—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 25 38.3	3 6.5	60			6 55 19 0	3 6.9	60		
28 45.4	3 7.1	60	. .	91.0	58 25.9	3 6.9	60	. .	86.0
31 52.2	3 6.8	60			7 1 32.9	3 7.0	60		
34 59.0	3 6.8	60			4 39.6	3 6.7	60		
35 11.5	12.5	4			52.1	12.5	4		
23.9	12.4	4			5 4.5	12.4	4		
36.4	12.5	4			17.0	12.5	4		
48.8	12.4	4			29.4	12.4	4		
36 1.3	12.5	4			41.9	12.5	4		
13.7	12.4	4			54.4	12.5	4		
26.2	12.5	4	64.5	63.5	6 6.9	12.5	4	67.3	60.3

Chronometer at 0h. mean time Santiago, + 22m. 3s.59, gaining daily 5s.18.

Scale reading for torsion.

Circle 90° E. . . . . 300.75 Circle 0° . . . . . 300.05 Circle 90° W. 299.02

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	286 55 40	272 3 30	282 52 50	276 7 0	276 5 20	282 55 50	271 59 30	267 3 10
B	59 0	6 40	56 10	10 0	8 30	59 10	172 2 20	6 30
C	58 20	5 40	55 40	9 10	7 40	58 30	1 20	6 0
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	6 36	6 33	6 29	6 25	6 19	6 14	6 9	6 5
	°	°	°	°	°	°	°	°
Temperature	66.8	66.5	66.2	66.2	66.2	65.5	65.5	65.3

Remarks.

Rather indifferent observations, for same reason as on the 12th instant. Thin clouds.

MAY 1, 1852.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 16 5.2					6 31 38.0				
17.6	12.4	4	68.7	198 0	50.4	12.4	4	70.7	103.0
30.1	12.5	4			32 2.7	12.3	4		
42.5	12.4	4			15.2	12.5	4		
54.9	12.4	4			27.6	12.4	4		
17 7.4	12.5	4			40.0	12.4	4		
19.8	12.4	4			52.5	12.5	4		
19 11.7	1 51.9	36			34 44.7	1 52.2	36		

MAY 1, 1852—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 22 18.3	3 6.6	60			6 37 51.5	3 6.8	60		
25 25.3	3 7.0	60	. .	94.0	40 58.4	3 6.9	60	. .	70.0
28 32.0	3 6.7	60			44 5.2	3 6.8	60		
31 38.6	3 6.6	60			47 12.0	3 6.8	60		
51.1	12.5	4			24.5	12.5	4		
32 3.5	12.4	4			36.9	12.4	4		
15.9	12.4	4			49.4	12.5	4		
28.4	12.5	4			48 1.7	12.3	4		
40.7	12.3	4			14.2	12.5	4		
53.2	12.5	4			26.6	12.4	4		
33 5.7	12.5	4	69.0	66.0	39.1	12.5	4	70.5	54.0

Chronometer at 0h. mean time Santiago, + 22m. 31s.76, gaining daily 3s.87.

Scale reading for torsion.

Circle 90° E. . . . . 302.23 Circle 0° . . . . . 301.37 Circle 90° W. 300.85

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and fifteen-hundredths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	. .	. .	92 37 20	92 49 30	92 50 0	92 37 40		
B	. .	. .	40 10	52 30	53 10	40 50		
C	. .	. .	39 30	51 50	52 30	40 0		
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	. .	. .	6 18	6 12	6 6	5 57		
	°	°	°	°	°	°	°	°
Temperature	. .	. .	70.0	70.0	70.0	70.2		

MAY 11, 1852.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 4 5.6					6 17 23.0				
18.1	12.5	4	71.2	114.0	35.5	12.5	4	74.0	101.5
30.5	12.4	4			47.9	12.4	4		
42.8	12.3	4			18 0.5	12.6	4		
55.2	12.4	4			13.0	12.5	4		
5 7.7	12.5	4			25.5	12.5	4		
20.2	12.5	4			37.9	12.4	4		
7 12.3	1 52.1	36			20 30.3	1 52.4	36		
10 18.9	3 6.6	60			23 37.6	3 7.3	60		

MAY 11, 1852—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 13 25.6	3 6.7	60	. .	84.0	6 26 44.9	3 7.3	60		
16 32.3	3 6.7	60			29 52.0	3 7.1	60		
19 39.0	3 6.7	60			32 59.2	3 7.2	60		
51.5	12.5	4			33 11.7	12.5	4		
20 3.9	12.4	4			24.2	12.5	4		
16.4	12.5	4			36.7	12.5	4		
28.8	12.4	4			49.2	12.5	4		
41.3	12.5	4			34 1.6	12.4	4		
53.7	12.4	4			14.1	12.5	4		
21 6.2	12.5	4	72.5	54.0	26.6	12.5	4		

Chronometer at 0h. mean time Santiago + 23m. 10s.43, gaining daily 3s.87.

Scale reading for torsion.

Circle 90° E. . . . 302.25 Circle 0° . . . . . 301.00 Circle 90° W. 300.40

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	59 31 30	44 35 10	. .	. .	. .	. .	44 40 0	59 29 20
B	34 50	41 0	. .	. .	. .	. .	43 10	32 20
C	33 40	40 30	. .	. .	. .	. .	42 50	31 30
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	6 2	5 55	. .	. .	. .	. .	5 50	5 43
	°	°	°	°	°	°	°	°
Temperature	74.5	73.5	. .	. .	. .	. .	73.5	73.0

MAY 28, 1852.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 12 0.0					6 24 30.0				
12.4	12.4	4	62.5	108.7	42.4	12.4	4	59.0	110.5
24.7	12.3	4			54.9	12.5	4		
37.2	12.5	4			25 7.4	12.5	4		
49.6	12.4	4			19.8	12.4	4		
13 2.1	12.5	4			32.2	12.4	4		
14.5	12.4	4			44.7	12.5	4		
15 6.5	1 52.0	36			27 36.8	1 52.1	36		
18 13.3	3 6.8	60			30 43.5	3 6.7	60		
21 20.0	3 6.7	60	. .	81.5	33 50.4	3 6.9	60	. .	83.0

MAY 28, 1852—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 24 26.8	3 6.8	60			6 36 57.2	3 6.8	60		
27 33.5	3 6.7	60			40 4.0	3 6.8	0		
46.0	12.5	4			16.5	12.5	4		
58.4	12.4	4			28.9	12.4	4		
28 10.8	12.4	4			41.5	12.6	4		
23.3	12.5	4			53.9	12.4	4		
35.7	12.4	4			41 6.3	12.4	4		
48.0	12.3	4			18.7	12.4	4		
29 0.5	12.5	4	62.5	53.0	31.2	12.5	4	60.0	58.0

Chronometer at 0h. mean time Santiago, + 24m. 27s.80, gaining daily 4s.55.

Scale reading for torsion.

Circle 90° E. . . . . 299.01 Circle 0° . . . . . 298.50 Circle 90° W. 298.12

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	48 32 0	33 35 10	44 27 0	37 39 0	37 39 0	44 28 10	33 34 30	48 32 30
B	34 50	38 0	30 0	42 0	41 50	31 10	37 30	35 40
C	34 30	38 0	29 30	41 50	41 50	30 30	37 10	34 50
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	6 12	6 7	6 3	6 0	5 57	5 53	5 48	5 43
	°	°	°	°	°	°	°	°
Temperature	59.5	59.5	58.8	58.8	59.0	59.0	59.0	59.0

Remarks.

Passing clouds.

JUNE 1, 1852.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 31 31.5					6 29 3.2				
44.0	12.5	4	54.5	145.0	15.6	12.4	4	54.3	154.0
56.4	12.4	4			28.0	12.4	4		
32 8.8	12.4	4			40.5	12.5	4		
21.2	12.4	4			52.9	12.4	4		
33.6	12.4	4			30 5.4	12.5	4		
46.1	12.5	4			17.8	12.4	4		
34 38.0	1 51.9	36			32 9.7	1 51.9	36		
37 44.5	3 6.5	60			35 16.2	3 6.5	60		
40 51.0	3 6.5	60	. .	107.0	38 22.9	3 6.7	60	. .	117.7

JUNE 1, 1852—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 43 57.5	3 6.5	60			6 41 29.5	3 6.6	60		
47 3.9	3 6.4	60			44 36.0	3 6.5	60		
16.5	12.6	4			48.5	12.5	4		
28.9	12.4	4			45 0.9	12.4	4		
41.3	12.4	4			13.3	12.4	4		
53.7	12.4	4			25.7	12.4	4		
48 6.1	12.4	4			38.1	12.4	4		
18.5	12.4	4			50.6	12.5	4		
31.0	12.5	4	54.0	77.0	46 3.0	12.4	4	54.3	82.0

Chronometer at 0h. mean time Santiago, + 24m. 41s.45, gaining daily 4s.55.

Scale reading for torsion.

Circle 90° E. . . . . 300.05 Circle 0° . . . . . 299.49 Circle 90° W. 299.03

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and fifteen-hundredths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ″
A	. .	. .	62 9 30	52 21 10	52 20 0	62 12 30		
B	. .	. .	12 30	24 40	23 0	15 50		
C	. .	. .	11 40	23 40	22 20	15 0		
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	. .	. .	6 18	6 15	6 10	6 6		
	°	°	°	°	°	°	°	°
Temperature	. .	. .	55.0	55.0	54.8	54.8		

Remarks.

Cloudy and damp.

JUNE 23, 1852.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
6 26 58.3					7 47 0.5				
27 10.8	12.5	4	63.5	121.3	13.0	12.5	4	66.5	109.5
23.4	12.6	4			25.5	12.5	4		
35.7	12.3	4			38.0	12.5	4		
48.2	12.5	4			50.5	12.5	4		
28 0.7	12.5	4			48 3.0	12.5	4		
13.1	12.4	4			15.4	12.4	4		
30 5.2	1 52.1	36			50 7.7	1 52.3	36		
33 12.0	3 6.8	60			53 14.7	3 7.0	60		
36 18.7	3 6.7	60	. .	89.0	56 21.7	3 7.0	60	. .	82.5

JUNE 23, 1852—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
6 39 25.5	3 6.8	60			7 59 28.6	3 6.9	60		
42 32.3	3 6.8	60			8 2 35.5	3 6.9	60		
44.7	12.4	4			48.1	12.6	4		
57.2	12.5	4			3 0.5	12.4	4		
43 9.6	12.4	4			13.0	12.5	4		
22.1	12.5	4			25.4	12.4	4		
34.5	12.4	4			37.9	12.5	4		
47.0	12.5	4			50.4	12.5	4		
59.5	12.5	4	64.5	59.5	4 2.8	12.4	4	64.7	60.0

Chronometer at 0h. mean time Santiago, + 26m. 24s.36, gaining daily 4s.48.

Scale reading for torsion.

Circle 90° E. . . . . 301.57 Circle 0° . . . . . 300.75 Circle 90° W. 300.12

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	164 53 0	150 12 30	160 53 20	154 11 30	154 8 0	160 57 10	150 1 0	165 3 30
B	56 30	16 10	56 40	15 0	11 10	161 1 20	4 30	6 50
C	55 50	15 30	56 10	14 10	10 20	0 0	4 0	6 0
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	7 34	7 39	7 24	7 28	7 17	7 19	7 8	7 12
	°	°	°	°	°	°	°	°
Temperature	70.0	68.5	72.0	72.0	74.5	74.5	67.5	72.0

Remarks.

During the deflection observations, the instrument was not well protected from the sun.

JULY 1, 1852.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 19 18.6					5 43 26.5				
31.0	12.4	4	61.2	138.0	39.0	12.5	4	67.7	121.5
43.4	12.4	4			51.4	12.4	4		
55.8	12.4	4			44 3.9	12.5	4		
20 8.2	12.4	4			16.5	12.6	4		
19.7	11.5	4			28.9	12.4	4		
33.1	13.4	4			41.4	12.5	4		
22 25.1	1 52.0	36			46 33.4	1 52.0	36		
25 31.9	3 6.8	60			49 40.5	3 7.1	60		
28 38.5	3 6.6	60			52 47.5	3 7.0	60	. .	91.0

JULY 1, 1852—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 31 45.2	3 6.7	60			5 55 54.5	3 7.0	60		
34 51.9	3 6.7	60			59 1.3	3 6.8	60		
35 4.4	12.5	4			13.7	12.4	4		
16.8	12.4	4			26.2	12.5	4		
29.2	12.4	4			38.6	12.4	4		
41.5	12.3	4			51.1	12.5	4		
54.0	12.5	4			6 0 3.5	12.4	4		
36 6.5	12.5	4			15.9	12.4	4		
18.9	12.4	4	62.0	59.0	28.4	12.5	4	68.8	65.0

Chronometer at 0h. mean time Santiago, + 27m. 0s.21, gaining daily 4s.48.

Scale reading for torsion.

Circle 90° E. . . . . 302.08 Circle 0° . . . . . 301.48 Circle 90° W. 301.01

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	182 48 20	167 53 30	178 44 10	171 58 20	171 58 40	178 44 0	167 53 40	182 48 50
B	51 20	56 40	47 30	172 1 30	172 1 40	47 0	56 50	51 50
C	50 40	56 10	46 50	0 50	1 10	46 40	56 20	51 10
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	5 34	5 28	5 23	5 19	5 16	5 12	5 8	5 4
	°	°	°	°	°	°	°	°
Temperature	66.0	66.0	64.7	64.7	64.0	64.0	63.0	63.0

Remarks.

During the latter part of the second series of vibration experiments the instrument was exposed to the sun. Used a new thread for the 3-inch magnet.

JULY 12, 1852.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 34 49 9					5 48 25.5				
35 2.4	12.5	4	59.5	126.5	37.9	12.4	4	56.5	144.0
14.9	12.5	4			50.4	12.5	4		
27.4	12.5	4			49 2.8	12.4	4		
39.9	12.5	4			15.2	12.4	4		
52.3	12.4	4			27.6	12.4	4		
36 4.7	12.4	4			40.0	12.4	4		
37 56.6	1 51.9	36			51 32.2	1 52.2	36		
41 3.3	3 6.7	60			54 38.9	3 6.7	60		

JULY 12, 1852—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 44 9.9	3 6.6	60	. .	87.7	5 57 45.8	3 6.9	60	. .	102.0
47 16.5	3 6.6	60			6 0 52.4	3 6.6	60		
50 23.2	3 6.7	60			3 59.2	3 6.8	60		
35.6	12.4	4			4 11.6	12.4	4		
48.1	12.5	4			24.1	12.5	4		
51 0.5	12.4	4			36.5	12.4	4		
12.9	12.4	4			48.9	12.4	4		
25.4	12.5	4			5 1.5	12.6	4		
37.8	12.4	4			14.0	12.5	4		
50.2	12.4	4	57.0	61.0	26.4	12.4	4	56.8	76.0

Chronometer at 0h. mean time Santiago, + 1m. 2s.50, gaining daily 4s.39.

Scale reading for torsion.

Circle 90° E. . . . . 301.84 Circle 0° . . . . . 301.31 Circle 90° W. 300.93

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	170 24 20	155 24 30	. .	. .	. .	. .	155 27 30	170 22 40
B	27 0	28 10	. .	. .	. .	. .	31 0	25 50
C	26 50	27 10	. .	. .	. .	. .	30 0	25 10
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	5 35	5 30	. .	. .	. .	. .	5 23	5 14
	°	°	°	°	°	°	°	°
Temperature	57.0	57.0	. .	. .	. .	. .	57.0	57.0

Remarks.

Cloudy.

AUGUST 2, 1852.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 2 5.5					6 23 31.6				
18.0	12.5	4	55.0	134.0	44.1	12.5	4	55.0	146.0
30.5	12.5	4			56.5	12.4	4		
42.9	12.4	4			24 8.9	12.4	4		
55.5	12.6	4			21.4	12.5	4		
3 7.9	12.4	4			33.9	12.5	4		
20.3	12.4	4			46.4	12.5	4		
5 12.3	1 52.0	36			26 38.4	1 52.0	36		
8 19.0	3 6.7	60			29 45.2	3 6.8	60		

AUGUST 2, 1852—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 11 25.6	3 6.6	60	. .	103.0	6 32 52.1	3 6.9	60	. .	110.0
14 32.5	3 6.9	60			35 58.8	3 6.7	60		
17 29.1	3 6.6	60			39 5.6	3 6.8	60		
51.5	12.4	4			18.1	12.5	4		
18 3.9	12.4	4			30.5	12.4	4		
16.3	12.4	4			43.0	12.5	4		
28.9	12.6	4			55.5	12.5	4		
41.3	12.4	4			40 8.0	12.5	4		
53.7	12.4	4			20.3	12.3	4		
19 6.1	12.4	4	57.0	73.0	32.7	12.4	4	56.0	75.0

Chronometer at 0h. mean time Santiago, + 2m. 45s.54, gaining daily 4s.93.

Scale reading for torsion.

Circle 90° E. . . . . 300.46 Circle 0° . . . . . 300.10 Circle 90° W. 299.61

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ′
A	98 58 40	113 57 50	103 4 0	109 52 30	109 51 10	103 5 20	113 55 0	99 1 50
B	99 1 39	114 1 0	7 10	56 0	54 40	8 40	58 10	5 0
C	0 50	0 0	6 40	55 30	54 20	8 0	57 20	4 30
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	6 12	6 8	6 3	5 59	5 56	5 52	5 47	5 42
	°	°	°	°	°	°	°	°
Temperature	55.2	55.2	55.2	55.2	55.0	55.2	55.2	55.0

AUGUST 11, 1852.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 31 4.9					5 29 6.5				
17.4	12.5	4	55.5	115.0	19.0	12.5	4	53.2	100.0
29.8	12.4	4			31.4	12.4	4		
42.2	12.4	4			43.9	12.5	4		
54.7	12.5	4			56.4	12.5	4		
32 7.1	12.4	4			30 8.7	12.3	4		
19.5	12.4	4			21.2	12.5	4		
34 11.6	1 52.1	36			32 13.3	1 52.1	36		
37 18.1	3 6.5	60			35 20.2	3 6.9	60		
40 24.9	3 6.8	60	. .	86.5	38 27.1	3 6.9	60	. .	72.2

AUGUST 11, 1852—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 43 31.6	3 6.7	60			5 41 33.9	3 6.8	60		
46 38.0	3 6.4	60			44 40.6	3 6.7	60		
50.6	12.6	4			53.2	12.6	4		
47 3.0	12.4	4			45 5.2	12.0	4		
15.5	12.5	4			18.0	12 8	4		
27.8	12.3	4			30.5	12.5	4		
40.2	12.4	4			43.1	12.6	4		
52.6	12.4	4			55.5	12.4	4		
48 5.1	12.5	4	55.0	61.0	46 7.8	12.3	4	52.5	49.0

Chronometer at 0h. mean time Santiago, + 3m. 29s.71, gaining daily 4s.93.

Scale reading for torsion.

Circle 90° E. . . . . 301.90 Circle 0° . . . . . 301.45 Circle 90° W. 301.00

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and one-tenth.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	. .	. .	142 39 20	131 24 10	131 25 20	142 36 40		
B	. .	. .	42 30	27 30	28 10	39 40		
C	. .	. .	42 0	26 40	27 40	39 20		
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	. .	. .	5 18	5 11	5 7	5 1		
	°	°	°	°	°	°	°	°
Temperature	. .	. .	53.2	53.0	53.0	53.5		

Remarks.

A fresh breeze was blowing, which jarred the instrument.

AUGUST 27, 1852.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 14 1.2					6 35 36.6				
13.6	12.4	4	52.2	142.8	49.1	12.5	4	50.5	138.0
26.1	12.5	4			36 1.5	12.4	4		
38.5	12.4	4			13.9	12.4	4		
51.0	12.5	4			26.5	12.6	4		
15 3.5	12.5	4			39.0	12.5	4		
15.8	12.3	4			51.4	12.4	4		
17 7.9	1 52.1	36			38 43.2	1 51.8	36		
20 14.6	3 6.7	60			41 50.1	3 6.9	60		
23 21.4	3 6.8	60	. .	105.0	44 56.8	3 6.7	60	. .	102.5

AUGUST 27, 1852—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 26 28.1	3 6.7	60			6 48 3.6	3 6.8	60		
29 34.8	3 6.7	60			51 10.3	3 6.7	60		
47.3	12.5	4			22.7	12.4	4		
59.7	12.4	4			35.2	12.5	4		
30 12.1	12.4	4			47.6	12.4	4		
24.5	12.4	4			52 0.0	12.4	4		
37.0	12.5	4			12.5	12.5	4		
49.5	12.5	4			25.0	12.5	4		
31 2.0	12.5	4	51.3	73.0	37.4	12.4	4	50.5	73.5

Chronometer at 0h. mean time Santiago, + 4m. 44s.34, gaining daily 4s.75.

Scale reading for torsion.

Circle 90° E. . . . . 299.00 Circle 0° . . . . . 298.70 Circle 90° W. 298.32

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	94 52 20	79 59 30	90 49 10	84 2 10	84 0 30	90 50 30	79 53 30	94 56 30
B	55 50	80 2 20	52 30	5 30	4 0	53 50	56 40	59 50
C	54 40	1 30	51 30	4 30	3 0	52 50	55 40	58 40
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	6 25	6 20	6 14	6 10	6 6	6 2	5 56	5 49
	°	°	°	°	°	°	°	°
Temperature	50.5	50.5	50.5	50.7	50.7	51.0	51.0	51.5

Remarks.

Cloudy, with appearances of rain.

SEPTEMBER 1, 1852.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 33 4.3					6 37 11.5				
16.7	12.4	4	55.0	141.7	24.0	12.5	4	56.5	106.3
29.2	12.5	4			36.5	12.5	4		
41.7	12.5	4			49.0	12.5	4		
54.1	12.4	4			38 1.4	12.4	4		
34 6.5	12.4	4			13.7	12.3	4		
19.0	12.5	4			26.2	12.5	4		
36 11.1	1 52.1	36			40 18.4	1 52.2	36		
39 17.8	3 6.7	60			43 25.2	3 6.8	60		

SEPTEMBER 1, 1852—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
5 42 24.6	3 6.8	60	. .	103.5	6 46 32.1	3 6.9	60	. .	63.0
45 31.3	3 6.7	60			49 39.0	3 6.9	60		
48 38.1	3 6.8	60			52 45.7	3 6.7	60		
50.5	12.4	4			58.2	12.5	4		
49 2.9	12.4	4			53 10.7	12.5	4		
15.4	12.5	4			23.1	12.4	4		
27.8	12.4	4			35.5	12.4	4		
40.2	12.4	4			48.0	12.5	4		
52.6	12.4	4			54 0.5	12.5	4		
50 5.1	12.5	4	55.0	75.0	12.9	12.4	4	57.0	57.8

Chronometer at 0h. mean time Santiago, + 5m. 8s.89, gaining daily 4s.91.

Scale reading for torsion.

Circle 90° E. . . . . 301.12 Circle 0° . . . . . 300.92 Circle 90° W. 300.45

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	295 49 20	280 57 20	. .	. .	. .	. .	280 55 20	295 50 50
B	52 30	281 0 30	. .	. .	. .	. .	58 30	54 10
C	52 20	280 59 40	. .	. .	. .	. .	58 0	53 40
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	6 26	6 20	. .	. .	. .	. .	6 11	6 6
	°	°	°	°	°	°	°	°
Temperature	56.2	56.0	. .	. .	. .	. .	55.7	55.0

SEPTEMBER 11, 1852.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 20 6.2					5 56 12.0				
18.6	12.4	4	56.0	140.0	24.5	12.5	4	60.5	114.0
31.1	12.5	4			37.0	12.5	4		
43.5	12.4	4			49.5	12.5	4		
56.0	12.5	4			57 2.0	12.5	4		
21 8.5	12.5	4			14.4	12.4	4		
21.0	12.5	4			26.9	12.5	4		
23 13.0	1 52.0	36			59 19.0	1 52.1	36		
26 19.7	3 6.7	60			6 2 26.0	3 7.0	60		
29 26.6	3 6.9	60	. .	105.0	5 32.9	3 6.9	60	. .	87.0

SEPTEMBER 11, 1852—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
4 32 33.5	3 6.9	60			6 8 39.8	3 6.9	60		
35 40.2	3 6.7	60			11 46.8	3 7.0	60		
52.6	12.4	4			59.2	12.4	4		
36 5.1	12.5	4			12 11.6	12.4	4		
17.6	12.5	4			24.1	12.5	4		
30.0	12.4	4			36.5	12.4	4		
42.5	12.5	4			49.0	12.5	4		
55.0	12.5	4			13 1.5	12.5	4		
37 7.5	12.5	4	57.7	71.5	14.0	12.5	4	61.5	59.3

Chronometer at 0h. mean time Santiago, + 6m. 5s.00, gaining daily 5s.07.

Scale reading for torsion.

Circle 90° E. . . . . 302.15 Circle 0° . . . . . 301.49 Circle 90° W. 301.10

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ′	° ′ ″
A	173 27 10	158 36 20	169 25 30	162 40 0	162 38 20	169 27 0	158 39 20	173 32 0
B	30 0	39 40	28 30	43 10	41 30	30 10	35 50	35 0
C	29 20	39 0	28 0	42 50	40 40	29 0	35 10	34 40
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	5 38	5 34	5 25	5 20	5 16	5 12	5 5	5 0
	°	°	°	°	°	°	°	°
Temperature	59.8	59.5	59.0	59.0	59.5	58.2	57.5	59.5

Remarks.

At first series of vibrations weather cloudy; at second series clear.

NOVEMBER 11, 1852.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
12 40 3.7					2 15 6.0				
15.6	11.9	4	72.3	150.0	18.0	12.0	4	75.5	128.0
28.0	12.4	4			30.4	12.4	4		
40.4	12.4	4			42.8	12.4	4		
52.8	12.4	4			55.6	12.8	4		
41 5.4	12.6	4			16 8.0	12.4	4		
18.0	12.6	4			20.0	12.0	4		
43 9.2	1 51.2	36			18 12.1	1 52.1	36		
46 15.0	3 5.8	60			21 17.9	3 5.8	60		

NOVEMBER 11, 1852—Continued.

EXPERIMENTS OF VIBRATION.

FIRST SERIES.					SECOND SERIES.				
Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.	Observed times.	Difference.	Number of vibrations.	Temp. mag.	Arc vibrat'n.
h. m. s.	m. s.		°	Div.	h. m. s.	m. s.		°	Div.
12 49 20.2	3 5.2	60	. .	111.0	2 24 24.1	3 6.2	60	. .	92.0
52 25.8	3 5.6	60			27 30.3	3 6.2	60		
55 31.2	3 5.4	60			30 36.4	3 6.1	60		
44.0	12.8	4			48.8	12.4	4		
56.4	12.4	4			31 1.6	12.8	4		
56 9.2	12.8	4			13.6	12.0	4		
21.2	12.0	4			26.1	12.5	4		
33.2	12.0	4			38.5	12.4	4		
46.8	13.6	4			50.8	12.3	4		
58.8	12.0	4			32 3.7	12.9	4	76.0	64.0
57 11.2	12.4	4							

Chronometer at 0h. mean time Santiago, — 3m. 46s.41, losing daily 1s.95.

Scale reading for torsion.

Circle 90° E. . . . . 301.50 Circle 0° . . . . . 300.26 Circle 90° W. 299.66

EXPERIMENTS OF DEFLECTION.

	DEFLECTOR EAST.				DEFLECTOR WEST.			
	One foot.		One foot and three-tenths.				One foot.	
	N.P.E.	N.P.W.	N.P.E.	N.P.W.	N.P.W.	N.P.E.	N.P.W.	N.P.E.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″
A	293 1 0	277 59 50	288 55 40	282 4 50	282 4 30	288 57 0	277 58 20	293 4 30
B	4 30	278 3 0	58 50	8 0	7 30	289 0 0	278 1 30	8 0
C	3 30	2 0	58 0	7 0	6 40	288 59 20	0 30	7 10
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Time	1 54	1 48	1 43	1 37	1 30	1 26	1 20	1 15
	°	°	°	°	°	°	°	°
Temperature	75.8	75.7	75.3	75.0	75.5	75.5	75.0	75.0

RESULTS OF THE CALCULATIONS

OF

THE HORIZONTAL FORCE,

IN

CHILE.

Date.	Time of vibration.	Angles of deflection.		Distances of deflector.		Temperatures of the deflector.		Temperat're correction.	Correction for torsion.
	T.	u.	u'.	r.	r'.	t'.	t.	$(t'-t)\,q.$	$\frac{H}{F}$
1850.	s.	° ′ ″	° ′ ″	*feet.*	*feet.*	°	°		
Feb. 11	3.012950	7 51 17.5	3 34 10.0	1.0	1.3	86.6	87.2	—0.0004334	0.00048877
22	3.013140	7 51 31.5	3 33 28.5	1.0	1.3	82.0	83.5	0.0005910	0.00048877
March 1	3.018595	7 51 44.0	3 34 54.0	1.0	1.3	77.8	77.8	0.0000000	0.00048877
11	3.004405	7 52 37.5	3 34 17.0	1.0	1.3	70.0	71.0	0.0003940	0.00048877
20	3.017643	7 49 19.0	3 33 20.0	1.0	1.3	81.0	82.0	0.0003940	0.00048877
April 1	3.021357	7 51 31.0	3 35 24.0	1.0	1.3	75.1	76.9	0.0007092	0.00048877
11	3.018690	7 49 56.0	3 32 32.0	1.0	1.3	71.4	72.0	0.0002364	0.00048877
24	3.019167	7 51 3.5	3 35 29.0	1.0	1.3	62.0	62.6	0.0002364	0.00015500
May 1	3.021024	7 48 27.0	3 32 56.0	1.0	1.3	70.4	73.0	0.0010244	0.00015500
11	3.025190	7 50 29.0	3 33 16.0	1.0	1.3	66.6	66.6	0.0000000	0.00015885
24	3.028800	7 48 40.0	3 33 2.0	1.0	1.3	65.4	69.2	—0.0014972	0.00015885
June 1	3.020380	7 50 6.0	3 33 48.0	1.0	1.3	50.5	50.5	0.0000000	0.00062635
11	3.025405	7 48 26.0	3 32 57.0	1.0	1.3	58.7	58.5	+0.0000788	0.00062635
19	3.030024	7 47 41.0	3 33 4.0	1.0	1.3	58.1	58.1	0.0000000	0.00019770
July 1*	3.034570	5 6 46.0	. . .	1.15	. .	52.8	52.8	0.0000000	0.00019770
11	3.027020	7 48 4.0	3 32 56.5	1.0	1.3	58.2	59.2	—0.0003940	0.00019770
24	3.025050	7 48 7.5	3 32 50.0	1.0	1.3	49.5	49.9	0 0001576	0.00019770
Aug. 1	3.029570	7 48 6.0	3 32 38.0	1.0	1.3	62.1	61.7	0.0001576	0.00019770
12	3.029595	7 48 16.0	3 32 58.0	1.0	1.3	55.6	56.3	0.0002758	0.00019770
21	3.031570	7 47 17.5	3 32 35.0	1.0	1.3	58.8	59.6	0.0003152	0.00019770
30	3.033690	7 47 1.0	3 32 2.0	1.0	1.3	62.4	64.1	—0.0006698	0.00019770
Oct. 1	3.038190	7 47 46.0	3 32 42.5	1.0	1.3	63.1	62.4	+0.0002758	0.00015910
11	3.032095	7 45 45.0	3 31 51.0	1.0	1.3	64.2	64.7	—0.0001970	0.00015910
23	3.039238	7 44 11.0	3 31 12.5	1.0	1.3	71.0	71.4	0.0001773	0.00014590
Nov. 1	3.045310	7 42 53.5	3 30 24.0	1.0	1.3	79.1	81.3	0.0008668	0.00013130
11	3.041620	7 43 11.0	3 30 33.5	1.0	1.3	69.4	70.3	—0.0003546	0.00013130
29	3.039476	7 43 28.5	3 31 0.0	1.0	1.3	61.7	61.2	+0.0001970	0.00013130
Dec. 2	3.044476	7 43 23.0	3 30 38.0	1.0	1.3	71.8	71.4	+0.0001576	0.00014960
11	3.047857	7 41 20.0	3 29 47.0	1.0	1.3	83.1	83.7	—0.0002364	0.00016790
25	3.050286	7 40 41.5	3 29 31.0	1.0	1.3	79.9	80.0	0.0000394	0.00016790
1851.									
Jan. 1	3.053690	7 42 32.0	3 29 23.5	1.0	1.3	71.8	72.3	—0.0001970	0.00016790
11	3.053095	7 39 47.0	3 29 14.5	1.0	1.3	79.6	79.5	+0.0000788	0.00016790
22	3.062405	7 41 28.5	3 28 26.5	1.0	1.3	85.4	85.8	—0.0001576	0.00016790
Feb. 1	3.054500	7 41 10.0	3 30 23.0	1.0	1.3	62.8	63.7	0.0003546	0.00016790
11	3.062833	7 37 10.0	3 28 7.0	1.0	1.3	79.9	80.3	0.0001576	0.00016790
21	3.065738	7 39 0.0	3 28 38.0	1.0	1.3	77.6	77.8	0.0000788	0.00014580
March 1	3.063929	7 37 29.0	3 28 4.0	1.0	1.3	77.2	77.5	0.0001182	0.00012360
11	3.070619	5 0 14.0	. . .	1.15	. .	81.2	81.7	0.0001970	0.00012360
19	3.066143	7 35 32.5	3 26 57.0	1.0	1.3	78.6	81.5	—0.0011426	0.00012360
April 1	3.064857	7 38 13.0	3 28 13.5	1.0	1.3	62.5	62.0	+0.0001970	0.00011530
11	3.069452	7 37 6.0	3 28 4.0	1.0	1.3	65.9	66.2	—0.0001182	0.00011530
23	3.068024	7 37 7.0	3 27 46.0	1.0	1.3	62.2	63.7	—0.0005910	0.00011530
May 1	3.068952	7 36 1.0	3 27 26.0	1.0	1.3	67.0	66.7	+0.0001182	0.00010390
12	3.068095	7 36 24.0	3 27 43.5	1.0	1.3	58.6	58.2	+0.0001576	0.00012380
30	3.067186	7 36 32.0	3 26 17.5	1.0	1.3	54.1	54.4	—0.0001182	0.00012380
June 11	3.067381	7 37 40.0	3 28 11.0	1.0	1.3	51.5	53.1	0.0006304	0.00012380
†18	3.071500	7 37 58.0	3 40 15.0	1.0	1.3	58.6	58.7	0.0000394	0.00012380
Aug. 11	3.080286	7 35 12.5	3 26 28.0	1.0	1.3	63.9	65.0	—0.0004334	0.00026890
29	3.080143	7 34 23.5	3 26 37.5	1.0	1.3	62.6	62.2	+0.0001576	0.00026890
Sept. 1	3.079048	7 33 7.0	3 26 11.5	1.0	1.3	65.7	66.9	—0.0004728	0.00026890
11	3.084238	7 34 26.5	3 26 51.0	1.0	1.3	58.6	58.8	0.0000788	0.00026890
24	3.082137	7 35 15.0	3 26 50.5	1.0	1.3	60.2	61.1	—0.0003546	0.00026890

Correction for arc of vibration.	Correction for rate of chronometer.	Mom't of inertia of deflector.	Mag. moment of deflector.	Horizontal force.	Observed inclination.	Total force.	Monthly means.		
$\frac{a\,a'}{16}$	$\frac{x}{86400}$	Log. K.	m.	X.			m.	X.	Total force.
					° ′ ″				
0.000047480	+0.000050000	0.425091	0.445010	6.497100	35 47 59	8.01038	0.44481	6.49942	8.01297
0.000006285	0.000051852	0.425064	0.444610	6.500175		8.01416			
0.000013190	0.000050000	0.425041	0.444770	6.478710		7.99340			
0.000013000	0.000052194	0.424994	0.446595	6.509315	35 51 16	8.03116	0.44496	6.49679	8.01571
0.000006661	0.000048455	0.425059	0.443575	6.502340		8.02256			
0.000006460	0.000050162	0.425024	0.444350	6.467340		7.97240			
0.000001925	0.000052662	0.425002	0.442975	6.501510	35 47 6	8.01453	0.44402	6.48129	7.98960
0.000006560	0.000049826	0.424946	0.444750	6.475010		7 98186			
0.000004630	0.000055787	0.424996	0.442400	6.497065		8 02463			
0.000006863	0.000045486	0.424974	0.442645	6.481680	35 56 19	8.00557	0.44209	6.48522	8.00996
0.000007849	0.000045486	0.424967	0.441230	6.476915		7.99967			
0.000008532	0.000049305	0.424878	0.443385	6.487100		8.01497			
0.000006899	0.000042361	0.424927	0.441865	6 489150	35 57 55	8.01748	0.44213	6.48607	8.01369
0.000007322	0.000047963	0.424923	0.441145	6.481970		8.00862			
0.000005882	+0.002727980	0.424897	0.441190	6.497360		7.99313			
0.000007604	0.000041852	0.424893	0.441525	6.497995	35 37 23	7.99392	0.44148	6.49582	7.99194
0.000019310	0.000050460	0.424875	0.441805	6.492115		7.98668			
0.000014440	0.000050463	0.424947	0.441075	6.484615		7.99942			
0.000019900	0.000038542	0.424908	0.441460	6.477230	35 50 30	7.99030	0.44071	6.48175	7.99587
0.000013370	0.000042870	0.424928	0.440515	6.492740		7.99710			
0.000013280	0.000050463	0.424948	0.439795	6.482405		7.99668			
0.000009055	0.000050463	0 424953	0.439360	6.475980		7.97178			
0.000014740	0.000050463	0.424959	0.439750	6.493320	35 40 3	7.99260	0.43905	6.48603	7.98332
0.000013370	0.000050463	0.424999	0.438045	6.488800		7.98607			
0.000004522	0.000055555	0.425047	0.436330	6.484705		7.96973			
0.000005944	0.000058218	0.424990	0.437095	6.491595	35 39 40	7.96822	0.43707	6.48961	7.97268
0.000009847	0.000055752	0.424945	0.437800	6.493190		7.98008			
0.000009055	0.000055752	0.425004	0.436900	6.486175		7.99992			
0.000005944	0.000055752	0.424993	0.435380	6.490960	35 38 40	7.98740	0.43570	6.48945	7.99169
0.000005646	0.000055752	0.425052	0.434820	6.491230		7.98774			
0.000013185	0.000055752	0.425004	0.434645	6.477710		7.96848			
0.000004368	0.000055752	0.425050	0.434590	6.490940	35 37 5	7.98474	0 43398	6.48113	7.97267
0.000007847	0.000055752	0.425084	0.432720	6.474730		7.96480			
0.000007413	0.000055752	0.424951	0.434660	6.472165		7.96126			
0.000008937	0.000055162	0.425052	0.431660	6.491190	35 36 51	7.98465	0.43270	6.47815	7.96862
0.000009442	0.000055162	0.425038	0.431770	6.471100		7.95994			
0.000018768	0.000057176	0.425036	0.431370	6.484640		7.97658			
0.000011516	0.000057176	0.425060	0.428950	6.492600	35 36 51	7.98640	0.43004	6.48962	7.98297
0.000010049	0.000057176	0.425045	0.429810	6.492230		7.98592			
0.000009637	0.000058333	0.424949	0 431520	6.479225		7.95628			
0.000010848	0.000055949	0.424969	0.430470	6.473780	35 28 26	7.94963	0.43080	6.47680	7.95331
0.000010837	0.000055949	0.424947	0.430410	6.477385		7.95402			
0.000010014	0.000050046	0.424976	0.429965	6.483635		7.96368			
0.000015131	0 000057130	0.424925	0.430350	6.482465	35 29 48	7.96226	0.43000	6.48667	7.96681
0.000010539	0.000057130	0.424899	0.429695	6.493910		7.97448			
0.000010800	0.000057130	0.424884	0 430800	6.472960	35 30 18	7.95620	0.43080	6.47260	7.95097
0.000008828	0.000057130	0.424925	0.436580	6.375725		7.83666	0.43658	6.37525	7.83138
0.000014238	0.000057130	0.424958	0.427585	6.468580	‡35 32 27	7.95108	0.42760	6.47043	7.95188
0.000068480	0.000051424	0.424949	0.427615	6.472980		7.95564			
0.000009291	0 000051424	0.424968	0.427120	6.480610		7.96618			
0.000007133	0.000038113	0.425026	0.428015	6.474475	35 33 32	7.95662	0.42726	6.47678	7.96146
0.000008560	+0.000046991	0.424942	0.426640	6.475250		7.9595?			

Date.	Time of vibration.	Angles of deflection.		Distances of deflector.		Temperatures of the deflector.		Temperat're correction.	Correction for torsion.
	T.	w.	w'.	r.	r'.	t'.	t.	$(t'-t)q$.	$\frac{H}{F}$
1851.	s.	° ′ ″	° ′ ″	*feet.*	*feet.*				
Oct. 1	3.083714	7 34 32.0	3 26 51.5	1.0	1.3	58.2	59.3	—0.0004334	0.00026880
11	3.081476	7 34 46.0	3 27 2.0	1.0	1.3	55.0	57.7	0.0010638	0.00026880
22	3.087357	7 33 31.5	3 26 5.0	1.0	1.3	68.4	68.9	0.0001970	0.00011850
Nov. 1	3.088476	7 32 24.0	3 25 41.0	1.0	1.3	70.6	71 2	0.0002364	0.00011300
11	3.086238	4 57 53.5	. . .	1.15	.	63.6	64.0	0.0001576	0.00011870
28	3.089905	7 31 25.0	3 25 25.5	1.0	1.3	71.6	72.0	0.0001576	0.00042250
Dec. 1	3.095738	16 33 46.0	7 29 45.0	0.77	1.0	82.8	83.2	0.0001576	0.00015780
11	3.090762	4 57 25.0	. . .	1.15	. .	65.4	66.4	—0.0003940	0.00015780
24	3.095500	7 31 54.0	3 24 53.0	1.0	1.3	71.7	71.0	+0.0002758	0.00015780
1852.									
Jan. 1	3.097594	4 54 21.5	. . .	1.15	. .	83.6	83.9	—0.0001182	0.00015780
12	3.094667	7 29 34.0	3 24 29.5	1.0	1.3	70.6	72.7	0.0008274	0.00015780
21	3.103594	4 55 26.0	. . .	1.15	. .	80.5	81.0	0.0001970	0.00015780
Feb. 2	3.103928	7 28 0.0	3 23 42.0	1.0	1.3	83.7	83.8	0.0000394	0.00015780
11	3.102976	7 27 35.0	3 23 43 5	1.0	1.3	79.4	79.9	0.0001970	0.00015780
27	3.109857	7 27 57.0	3 23 34.0	1.0	1.3	81.8	82.8	0.0003940	0.00015780
Mar. 1	3.106214	4 55 12.0	. . .	1.15	. .	70.0	70.5	0.0001970	0.00015780
‖11	3.115101	7 28 10 0	3 23 27.0	1.0	1.3	72.7	74.2	0.0005910	0.00015780
24	3.106938	7 27 55.0	3 23 13.0	1.0	1.3	69.5	69.6	0.0000394	0.00015780
April 1	3.112643	7 28 36.0	3 23 6.5	1.0	1.3	76.5	76.6	0.0000394	0.00015780
12	3.109794	4 54 32.0	. . .	1.15	. .	66.8	67.5	—0.0002758	0.00015780
21	3.113976	7 29 8.0	3 24 12.5	1.0	1.3	66.8	66.0	+0.0003152	0.00015780
May 1	3.112571	4 53 50.0	. . .	1.15	. .	69.7	70.0	—0.0001182	0.00015780
11	3.116167	7 25 37.0	. . .	1.0	. .	72 8	73.6	—0.0003152	0.00015780
28	3.112762	7 28 40.0	3 24 14.0	1.0	1.3	61.0	59.1	+0.0007486	0.00090940
June 1	3.108809	4 55 11.0	. . .	1.15	. .	54.3	54.9	—0.0002364	0.00090940
23	3.114786	7 25 40 0	3 22 52.5	1.0	1.3	64.8	71.4	—0.0026004	0.00090940
July 1	3.113381	7 27 25.0	3 22 50.0	1.0	1.3	64.9	64.4	+0.0001970	0.00090940
12	3.111593	7 28 37.0	. . .	1.0	. .	57.5	57.0	0.0001970	0.00090940
Aug. 2	3.119452	7 28 5.0	3 23 41.5	1.0	1.3	55.8	55.4	0.0001576	0.00090940
11	3.112167	5 36 40.0	. . .	1.1	. .	54.0	53.2	0.0003152	0.00090940
27	3.119094	7 29 3.0	3 24 13.0	1.0	1.3	51.1	50.8	0.0001182	0.00090940
Sept. 1	3.113190	7 26 57.0	. . .	1.0	. .	55.9	55.7	+0.0000788	0.00090940
11	3.114405	7 27 29.0	3 23 28.0	1.0	1.3	58.9	59.0	—0.0000394	0.00090940
Nov. 11	3.097500	7 31 57..	3 25 52.0	1.0	1.3	74.4	75.4	—0.0003940	0.00017410
LA CANDELARIA.									
July 6, 1851	3.038770	7 30 57.0	3 24 28.0	1.0	1.3	62.9	61.7	+0.0004998	0.00023339
COPIAPÓ.									
July 9, 1851	3.060490	7 32 17.0	3 26 5.0	1.0	1.3	65.5	67.7	—0.0008668	0.00029412
CALDERA.									
July 15, 1851	3.066100	7 30 16.0	3 24 22.5	1.0	1.3	61.5	61.4	+0.0000394	0.00021301
VALPARAISO.									
July 22, 1851	3.075890	7 36 44.0	3 27 28.0	1.0	1.3	58.1	62.4	—0.0016942	0.00021300
HERRADURA.									
July 29, 1851	3.104544	7 44 56.0	3 28 14.0	1.0	1.3	61.8	62.1	—0.0001182	0.00021300
WASHINGTON.									
May 28, 1853	3.879595	11 8 4.0	5 3 28.5	1.0	1.3	76.1	74.7	+0.0005516	0.00019590

Remarks.

* July 1, 1850.—Time marked by sidereal chronometer.

† June 18, 1851.—The instrument had received a fall, and was out of order.

‡ Aug. —, 1851.—Inclination derived from a mean of inclination for June and September, allowing two to one for the latter.

Correction for arc of vibration.	Correction for rate of chronometer.	Mom't of inertia of deflector.	Mag. moment of deflector.	Horizontal force.	Observed inclination.	Total force.	Monthly means.		
$\frac{a\,a'}{16}$	$\frac{x}{86400}$	Log. K.	m.	X.			m.	X.	Total force.
					° ′ ″				
0.000007001	+0.000049676	0.424923	0.427135	6.460350		7.94939			
0.000010854	0.000052153	0.424905	0.427445	6.460710	35 38 24	7.94978	0.42689	6.46296	7.95253
0.000011715	0.000052153	0.424984	0.426085	6.467810		7.95850			
0.000007704	0.000054699	0.424997	0.425220	6.469180		7.96658			
0.000007704	0.000054699	0.424956	0.426300	6.465670	35 41 43	7.96135	0.42547	6.46856	7.96590
0.000023153	0.000060185	0.425003	0.424885	6.470890		7.96768			
0.000014541	0.000060185	0.425069	0.422935	6.479330		7.95980			
0.000010488	0.000055174	0.424967	0.425230	6.460540	35 35 50	7.94530	0.42408	6.46556	7.95148
0.000016587	0.000055174	0.425004	0.424090	6.463815		7.94934			
0.000008517	0.000055174	0.425074	0.422270	6.481490		7.97024			
0.000008899	0.000056215	0.424997	0.422990	6.474980	35 35 24	7.96142	0.42947	6.47083	7.96721
0.000009368	0.000056215	0.425056	0.422910	6.456808		7.93998			
0.000008444	0.000059873	0.425074	0.421390	6.469830		7.95854			
0.000008815	0.000059873	0.425049	0.421390	6.471615	35 37 33	7.96174	0.42107	6.46577	7.95451
0.000008140	0.000052315	0.425063	0.420425	6.456675		7.94396			
0.000010014	0.000052315	0.424994	0.421650	6.453270		7.94694			
0.000009594	0.002722570	0.425009	0 420760	6.462180	35 41 49	7.95722	0.42097	6.46102	7.95579
0.000009529	0.000061690	0.424991	0.420515	6.467610		7.96390			
0.000009149	0.000061690	0.425032	0.419540	6.460030		7.94770			
0.000010140	0.000059770	0.424975	0.420680	6.459920	35 37 40	7.93892	0.42027	6.45115	7.93676
0.000008004	0.000059770	0.424975	0.420580	6.440495		7.92365			
0.000009368	0.000044803	0.424992	0.419830	6.455200		7.93546			
0.000007704	0.000044803	0.425010	0.418520	6.459500	35 33 52	7.94074	0.41970	6.45350	7.93338
0.000008291	0.000059662	0.424941	0.420740	6.445810		7.92394			
0.000016510	0.000059662	0.424901	0.421250	6.447520	§35 36 10	7.92980	0.41996	6.45930	7.93630
0.000009368	0.000051887	0.424963	0.418670	6.457080		7.94280			
0.000010848	0.000051887	0.424964	0.419540	6.458495	35 38 11	7.94665	0.42007	6.45372	7.94077
0.000012374	0.000050764	0.424920	0.420610	6.448940		7.93490			
0.000014321	0.000057060	0.424909	0.420230	6.450775		7.93966			
0.000007995	0.000057060	0.424899	0.420950	6.441560	35 35 41	7.92166	0.42065	6.44534	7.92921
0.000013944	0.000055000	0.424882	0.420760	6.443685		7.92430			
0.000011015	0.000058680	0.424910	0.419590	6.457090	35 31 25	7.93366	0.41963	6.45358	7.93943
0.000011982	+0.000058680	0.424928	0.419675	6.450135		7.92590			
0.000012910	−0.000021180	0.425019	0.424295	6.459390	¶35 31 25	7.93786	0.42429	6.45930	7.93786
							Latitude.		Longitude.
							° ′ ″		h. m. s.
0.000005448	0.000063560	0.424949	0.431330	6.587720	98 38 9	7.50580	S. 27 47 51		W. 4 41 50
0.000015117	0.000063560	0.424967	0.426540	6.479420	98 6 55	7.34695	27 22 53		4 41 52
0.000013823	−0.000006940	0.424943	0.427390	6.533940	27 26 57	7.36986	27 5 20		4 43 29
0.000010180	+0.000057870	0.424923	0.426800	6.460470	**35 52 5	7.97298	33 1 53		4 46 30
0.000009529	0.000057870	0.424945	0.427480	6.372180	32 9 44	7.52798	30 0 10		4 45 26
0.000014430	+0.000091430	0.425032	0.4110600	4.974000	71 21 25	13.38682	N. 36 53 28		W. 5 8 8

‖ March 11, 1852.—Time marked with sidereal chronometer.

§ June, 1852.—Inclination determined by one needle only; therefore the mean difference between the two needles has been applied to obtain the true inclination.

¶ November 11, 1852.—Inclination not observed; used that for September.

** Valparaiso, July 22, 1851.—See note for June, 1852.

RESULTS OF OBSERVATIONS

FOR

THE MAGNETIC INCLINATION

IN

CHILE,

BY THE

U. S. NAVAL ASTRONOMICAL EXPEDITION.

INCLINATION OF THE MAGNETIC NEEDLE.

Station.	Date.	Needle.	Time.	No. of readings.	Inclination obs'd.	Quarterly means.		
		Number.	h. m. h. m.		° ′ ″	Season.	Needle 1.	Needle 2.
	1850.						° ′ ″	° ′ ″
Santiago	*Jan. 23	1	12 15 to 2 30	48	36 12 24			
Do	Feb. 1	2	12 5 to 2 0	48	35 52 46			
Do	Feb. 1	1	2 0 to 3 0	48	35 43 58			
Do	Feb. 11	2	12 15 to 1 30	48	35 58 30	Summer . .	35 49 11	35 54 18
Do	Feb. 11	1	1 45 to 3 30	48	35 43 58			
Do	Feb. 22	2	12 45 to 1 45	48	35 51 37			
Do	Feb. 22	1	1 50 to 2 45	48	35 36 25			
Do	Mar. 1	1	12 10 to 2 0	48	35 44 18			
Do	Mar. 1	2	2 10 to 3 0	48	36 4 39			
Do	Mar. 11	1	12 15 to 1 15	48	35 42 28			
Do	†Mar. 11	2	1 15 to 2 30	48	36 4 11			
Do	Mar. 20	1	12 5 to 1 30	48	35 38 11			
Do	Mar. 20	2	1 45 to 3 50	48	35 53 29			
Do	April 1	1	12 25 to 1 30	48	35 46 40			
Do	April 1	2	1 30 to 2 50	48	35 46 52	Autumn . .	35 43 16	35 58 37
Do	April 11	1	12 10 to 1 10	48	35 44 5			
Do	April 11	2	1 15 to 2 50	48	35 50 50			
Do	April 24	1	11 30 to 12 45	48	35 35 11			
Do	April 24	2	1 0 to 2 0	48	35 58 51			
Do	May 1	1	12 45 to 1 45	48	35 41 54			
Do	May 1	2	1 50 to 3 0	48	36 3 21			
Do	May 11	1	11 50 to 1 0	48	35 53 20			
Do	May 11	2	1 10 to 2 30	48	36 6 41			
Do	June 1	2	12 0 to 12 50	48	35 47 10			
Do	June 1	1	1 0 to 2 10	‡96	35 42 33			
Do	June 11	2	2 10 to 3 5	48	36 5 38			
Do	‖June 19	1	12 0 to 1 0	48	36 1 49			
Do	June 19	2	1 10 to 2 15	48	36 12 24			
Do	July 11	1	12 15 to 1 15	48	35 29 36	Winter . .	35 42 26	35 59 2
Do	July 11	2	1 20 to 2 10	48	35 45 10			
Do	Aug. 12	1	12 5 to 1 10	48	35 45 39			
Do	Aug. 12	2	1 15 to 2 10	48	36 2 49			
Do	Aug. 30	1	12 30 to 1 30	48	35 32 31			
Do	Aug. 30	2	1 30 to 2 30	48	36 1 3			
Do	Oct. 1	1	12 15 to 1 40	48	36 6 55			
Do	Oct. 1	2	1 40 to 2 45	48	35 50 22			
Do	Oct. 11	1	12 0 to 1 20	48	35 21 1			
Do	Oct. 11	2	1 20 to 2 30	48	35 51 55	Spring . .	35 35 38	35 49 23
Do	Nov. 1	2	1 0 to 2 0	48	35 43 22			
Do	Nov. 1	1	2 0 to 3 0	48	35 31 7			
Do	Nov. 11	1	12 5 to 12 45	48	35 23 10			
Do	Nov. 11	2	1 0 to 1 35	48	35 53 56			
Do	Dec. 11	1	12 0 to 12 45	48	35 30 1			
Do	Dec. 11	2	1 0 to 1 50	48	35 47 19			
Annual means . .	. . .	1	. . . . .	. .	35 42 9			
		2	. . . . .	. .	35 55 16			

* There is some doubt respecting the reversal of the poles.

† A violent storm, with thunder and lightning in the Cordilleras, and the whole sky very unusually overcast with cirro-stratus.

‡ The readings being very discordant at commencement, double sets were made.

‖ The day was wholly overcast; therefore no observation for absolute declination.

Station.	Date.	Needle.	Time.	No. of readings.	Inclination obs'd.	Quarterly means.		
		Number.	h. m. h. m.		° ′ ″	Season.	Needle 1.	Needle 2.
	1851.						° ′ ″	° ′ ″
Santiago	Jan. 1	2	1 0 to 3 10	48	35 48 9			
Do	Jan. 11	1	11 52 to 1 0	48	35 10 29			
Do	Jan. 11	2	1 0 to 1 55	48	35 52 36			
Do	Feb. 1	1	11 50 to 12 40	48	35 17 32	Summer . .	35 15 59	35 51 36
Do	Feb. 1	2	12 40 to 1 15	48	35 54 31			
Do	Feb. 11	1	12 10 to 1 0	48	35 19 56			
Do	Feb. 11	2	1 0 to 1 45	48	35 55 26			
Do	Mar. 1	1	11 0 to 11 40	48	35 16 40			
Do	Mar. 1	2	11 45 to 12 45	48	36 12 51			
Do	Mar. 11	1	1 15 to 2 0	48	35 6 10			
Do	Mar. 11	2	2 10 to 2 55	48	35 51 45			
Do	April 1	2	12 0 to 12 50	48	35 44 39			
Do	April 1	1	1 0 to 1 30	48	35 12 6			
Do	April 11	1	11 35 to 12 20	48	35 10 5			
Do	April 11	2	12 25 to 1 10	48	35 46 55	Autumn . .	35 13 4	35 49 47
Do	May 1	1	11 35 to 12 5	48	35 15 7			
Do	May 1	2	12 15 to 1 0	48	35 35 26			
Do	May 12	1	11 40 to 12 15	48	35 20 4			
Do	May 12	2	12 20 to 12 50	48	35 44 10			
Do	May 30	2	11 51 to 1 0	48	35 52 42			
Do	May 30	1	1 0 to 2 20	48	35 11 19			
Do	June 11	2	11 25 to 12 45	48	35 36 5			
Do	June 11	1	12 50 to 1 25	48	35 30 18	Winter . .	35 30 47	35 43 17
Do	Aug. 11	1	11 40 to 12 40	48	35 31 16			
Do	Aug. 11	*2	12 40 to 2 10	48	35 50 30			
Do	Sept. 1	†1	10 0 to 12 0	48	35 13 19			
Do	Sept. 1	‡2	12 5 to 1 0	48	35 53 46			
Do	Oct. 1	1	11 45 to 12 30	48	35 26 51			
Do	Oct. 1	2	12 30 to 1 15	48	35 41 40			
Do	Oct. 11	1	1 5 to 1 50	48	35 33 1			
Do	Oct. 11	2	1 50 to 2 40	48	35 52 5	Spring . .	35 25 48	35 51 39
Do	Nov. 1	2	10 45 to 11 45	48	35 55 10			
Do	Nov. 1	1	12 0 to 1 0	48	35 29 35			
Do	Nov. 11	1	12 35 to 1 30	48	35 26 12			
Do	Nov. 11	2	1 40 to 2 20	48	35 55 34			
Do	Dec. 1	2	11 50 to 12 35	48	35 49 46			
Do	Dec. 1	1	12 35 to 1 20	48	35 21 1			
Do	Dec. 11	1	12 25 to 1 6	48	35 26 5			
Do	Dec. 11	2	1 10 to 1 50	48	35 46 26			
Annual means . .	. . .	1	. . . . .	. .	35 21 24			
		2	. . . . .	. .	35 50 1			

* This magnet would not vibrate properly, and its points of rest ranged through 3° or 4° of arc. The readings given were the nearest I could obtain to the proper ones, by renewing the vibrations when the needle rested far from the mean inclination before obtained.

† The pivots of the magnet appeared to be bent.

‡ Not worth the copying.

Station.	Date.	Needle.	Time.		No. of readings.	Inclination obs'd.	Quarterly means.		
		Number.	h. m.	h. m.		° ′ ″	Season.	Needle 1.	Needle 2.
	1852.							° ′ ″	° ′ ″
Santiago	Jan. 1	2?	12 30	to 1 30	48	35 49 32			
Do	Jan. 1	1?	1 35	to 2 20	48	35 22 14			
Do	Jan. 12	2	12 30	to 1 15	48	35 46 14			
Do	Jan. 12	1	1 20	to 2 10	48	35 23 34	Summer . .	35 22 47	35 49 43
Do	Feb. 2	1?	1 10	to 2 0	48	35 19 55			
Do	Feb. 2	2?	2 5	to 2 50	48	35 55 40			
Do	Feb. 11	2	12 0	to 1 0	48	35 50 41			
Do	Feb. 11	1	1 0	to 1 50	48	35 23 55			
Do	Mar. 1	1	11 0	to 11 55	48	35 28 46			
Do	Mar. 1	2	11 55	to 12 30	48	35 57 11			
Do	Mar. 11	1	1 20	to 2 5	48	35 21 49			
Do	Mar. 11	2	2 10	to 2 55	48	35 59 30			
Do	April 1	1	1 15	to 2 0	48	35 28 52			
Do	April 1	2	2 0	to 3 0	48	35 54 42	Autumn . .	35 24 44	35 50 50
Do	April 11	2	11 50	to 12 35	48	35 40 56			
Do	April 11	1	12 40	to 1 40	48	35 26 9			
Do	May 1	2	12 10	to 1 30	48	35 42 42			
Do	May 1	1	1 30	to 2 10	48	35 20 35			
Do	May 11	1	12 45	to 1 30	48	35 22 12			
Do	May 11	2	1 30	to 2 15	48	35 50 0			
Do	*June 11	1	1 40	to 2 40	48	35 23 35			
Do	July 1	1	11 25	to 11 55	48	35 20 5			
Do	July 1	2	12 0	to 12 45	48	35 55 24			
Do	July 12	1	1 30	to 2 10	48	35 22 7			
Do	†July 12	2	2 15	to 2 50	48	35 55 10	Winter . .	35 21 50	35 52 29
Do	Aug. 2	1	12 35	to 1 30	48	35 22 30			
Do	Aug. 2	2	1 35	to 2 15	48	35 49 24			
Do	‡Aug. 11	1	12 30	to 1 20	48	35 20 55			
Do	‖Aug. 11	2	1 20	to 2 30	48	35 49 56			
Do	Sept. 1	1	12 10	to 1 5	48	35 13 57			
Do	Sept. 1	2	1 10	to 2 0	48	35 49 1			
Annual means . .	. . .	1	. . . . .		. .	35 22 34			
	. . .	2	. . . . .		. .	35 51 5			

* Magnet No. 2 not used on account of the rain.
† Not of much value.
‡ On account of wind the needle could not be brought to rest.
‖ Wind blowing very hard, and the magnet vibrating through 3° of arc.

Station.	Date.	Needle.	Time.		No. of readings.	Inclination obs'd.
		Number.	h. m.	h. m.		° ′ ″
	1851.					
Candelaria mine, Chañarcillo.	July 7	1	10 0	to 10 58	36	28 26 48
	July 7	2	11 0	to 12 30	30	28 49 30
Copiapó city* . . .	July 10	1	10 45	to 12 0	42	27 52 11
Copiapó city . . .	July 10	2	12 0	to 1 15	42	28 21 39
Caldera	July 16	1	4 0	to 5 5	40	27 13 45
Caldera	July 17	2	12 0	to 1 20	40	27 38 9
Valparaiso† . . .	July 23	1	11 0	to 12 0	48	35 39 30
Herradura bay‡ . .	July 30	1	11 30	to 12 0	48	31 55 7
Herradura bay . .	July 30	2	12 45	to 1 45	47	32 26 51
Herradura bay‖ . .	July 30	1	2 0	to 3 0	48	32 0 16

* In the garden of Don Diego Carvallo.
† At Mr. Mouatt's observatory.
‡ Made near Capt. Fitzroy's old site.
‖ Repeated because of doubt with first observation.

OBSERVATIONS OF THE NORTH POLE OF THE INCLINATION MAGNET,

AT SANTIAGO DE CHILE.

JUNE 19 and 20, 1850.

Göttingen mean time.	Dip circle.	Göttingen mean time.	Dip circle.	Göttingen mean time.	Dip circle.	Göttingen mean time.	Dip circle.	Göttingen mean time.	Dip circle.	Göttingen mean time.	Dip circle.
h. m.	° ′	h. m.	° ′	h. m.	° ′	h. m.	° ′	h. m.	° ′	h. m.	° ′
10 00 P. M.	36 41	2 00 A. M.	36 35	6 00 A. M.	36 39	10 00 A. M.	36 35	2 00 P. M.	36 35	6 00 P. M.	36 43
30	37	30	35	30	39	30	35	30	37	30	44
11 00	37	3 00	35	7 00	39	11 00	35	3 00	42	7 00	44
30	37	30	35	30	39	30	35	30	42	30	44
Midnight.	33	4 00	39	8 00	39	Noon.	35	4 00	42	8 00	44
30 A. M.	36	30	39	30	39	30 P. M.	35	30	42	30	44
1 00	36	5 00	39	9 00	39	1 00	35	5 00	43	9 00	44
30	36 35	30	36 39	30	36 39	30	36 35	30	36 43	30	36 44

The instrument was placed under a corridor of our residence.

JULY 24 and 25, 1850.

Göttingen mean time.	Dip circle.	Göttingen mean time.	Dip circle.	Göttingen mean time.	Dip circle.
h. m.	° ′	h. m.	° ′	h. m.	° ′
10 00 P. M.	34 13	6 00 A. M.	34 10	2 00 P. M.	34 12
11 00	10	7 00	10	3 00	12
Midnight.	12	8 00	13	4 00	10
1 00 A. M.	10	9 00	13	5 00	10
2 00	10	10 00	13	6 00	10
3 00	10	11 00	13	7 00	10
4 00	10	Noon.	12	8 00	10
5 00	34 10	1 00 P. M.	34 12	9 00	34 10

AUGUST 29 and 30, 1850.

Göttingen mean time.	Dip circle.	Göttingen mean time.	Dip circle.	Göttingen mean time.	Dip circle.
h. m.	° ′	h. m.	° ′	h. m.	° ′
10 00 P. M.	36 20	6 00 A. M.	36 20	2 00 P. M.	36 16
11 00	22	7 00	20	3 00	16
Midnight.	22	8 00	20	4 00	16
1 00 A. M.	22	9 00	20	5 00	16
2 00	22	10 00	20	6 00	16
3 00	22	11 00	20	7 00	16
4 00	20	Noon.	20	8 00	26
5 00	36 20	1 00 P. M.	36 20	9 00	36 26

SEPTEMBER 24 and 25, 1851.

Göttingen mean time.	Dip circle.	Göttingen mean time.	Dip circle.	Göttingen mean time.	Dip circle.
h. m.	° ′	h. m.	° ′	h. m.	° ′
9 30 P. M.	34 30	5 30 A. M.	34 28	1 30 P. M.	34 21
10 30	30	6 30	27	2 30	19
11 30	30	7 30	27	3 30	15
12 30 A. M.	26	8 30	24	4 30	17½
1 30	31	9 30	25	5 30	18½
2 30	28	10 30	25	6 30	18
3 30	28	11 30	25	7 30	14½
4 30	28	12 30 P. M.	34 20	8 30	34 15½

OCTOBER 22 and 23, 1851.

Göttingen mean time.	Dip circle.	Göttingen mean time.	Dip circle.	Göttingen mean time.	Dip circle.
h. m.	° ′	h. m.	° ′	h. m.	° ′
10 3 P. M.	34 20	6 3 A. M.	34 19	2 3 P. M.	34 4
11 3	19	7 3	15	3 3	8
12 3 A. M.	20	8 3	15	4 3	34 12
1 3	20	9 3	17	5 3	33 55
2 3	17	10 3	14	6 3	34 1
3 3	14	11 3	15	7 3	5
4 3	12	12 3 P. M.	12	8 3	15
5 3	34 19	1 3	34 25	9 3	34 11½

MAGNETIC TERM-DAY OBSERVATIONS,

MADE BY DIRECTION OF

PROF. A. D. BACHE,

SUPERINTENDENT UNITED STATES COAST SURVEY,

AT

WASHINGTON, D. C., AND IN CALIFORNIA,

DURING THE YEARS 1851—1855.

COMMUNICATED BY PROFESSOR A. D. BACHE.

LETTER FROM PROFESSOR BACHE.

COAST SURVEY OFFICE, *February* 14, 1856.

DEAR SIR: With this I forward to you a copy of the records of Magnetic Term-day Observations made at several stations in this city, and on the western coast, in accordance with arrangements made in the spring of 1849.

Yours, respectfully,

A. D. BACHE,
Superintendent.

Lieut. J. M. GILLISS, *U. S. N.*,
Superintendent Naval Astronomical Expedition,
Washington, D. C.

MAGNETIC TERM-DAY OBSERVATIONS

AT THE

U. S. COAST SURVEY OFFICE, CAPITOL HILL, WASHINGTON, D. C.

Latitude, 38° 53′ 8″. Longitude, 77° 0′ 11″ (5*h*. 7*m*. 1*s*.) west of Greenwich.

DIFFERENTIAL OBSERVATIONS OF DECLINATION IN 1851.

The instruments used were declinometer No. 22, United States Coast Survey; and from and after June 18, declinometer No. 3, United States Coast Survey. The observations were taken in the cellar of one of the Coast Survey buildings. Increasing telescopic readings denote an easterly movement of the north end of the magnet of declinometer No. 22, but the reverse motion for the magnet of declinometer No. 3; the first direction is inferred from the observed diurnal movement.

The following tables contain the scale readings.

MARCH 19 and 20, 1851.

Göttingen mean time.	0 m.	6 ms.	12 ms.	18 ms.	24 ms.	30 ms.	36 ms.	42 ms.	48 ms.	54 ms.	Washington mean time.
10 P. M.	.....	.....	.....	.....	81.53	81.55	81.75	82.50	82.10	82.75	4 12 P. M.
11	82.52	82.62	82.97	82.60	82.85	82.60	83.00	82.78	82.75	82.75	5 12
12	82.88	83.28	83.50	83.00	82.63	83.37	83.50	84.12	83.03	85.03	6 12
1 A. M.	83.53	82.85	83.00	82.50	85.57	85.70	83.00	83.08	83.32	83.00	7 12
2	81.50	81.95	82.90	83.05	83.05	83.07	83.27	83.20	83.15	83.05	8 12
3	83.12	83.05	83.00	83.05	82.85	82.97	83.15	83.02	83.12	83.00	9 12
4	83.78	82.55	82.07	82.05	82.22	82.30	82.15	82.25	82.32	82.42	10 12
5	82.03	82.60	82.50	82.23	82.25	82.45	82.55	82.22	82.60	82.60	11 12
6	82.50	82.50	82.40	82.35	82.40	82.52	82.40	82.40	82.35	82.50	12 12
7	82.30	82.35	82.55	82.30	82.25	83.25	85.07	82.50	82.50	82 50	1 12 A. M.
8	82.48	82.65	82.75	82.78	82.57	82.08	82.47	83.10	82.55	83.25	2 12
9	82.78	82.55	83.30	82.75	82.70	82.63	82.65	82 85	82.80	82.60	3 12
10	82.90	82.75	82.85	82.90	82.77	82.82	82.95	82.80	83.08	83.65	4 12
11	83.03	83.12	83.25	83.73	83.30	83.32	83.45	83.40	83.30	83.55	5 12
12	83.75	83.90	83.88	83.95	84.05	84.08	84.32	84.40	84.37	84.80	6 12
1 P. M.	84.75	85.00	85.02	84.98	85.25	85.75	85.80	85.30	85.25	85 37	7 12
2	85.17	85.22	85.25	84.88	85.10	85.05	85.07	85.25	85.15	85.57	8 12
3	85.35	85.55	86.45	86.30	87.62	88.07	.....	.....	88.25	88.30	9 12
4	88.65	88.00	87.90	87.00	86.55	85.62	85.17	84.80	84.50	84.30	10 12
5	84.12	84.65	84.35	84.00	84.00	84.32	84.10	84.27	84.25	83.50	11 12
6	82.92	83.15	83.07	82.75	82.55	82.45	82.15	81.95	81.80	81.50	12 12
7	81.40	80.67	81.05	81.30	81.00	81.25	81.25	81.25	81.20	81 25	1 12 P. M.
8	81.30	81.65	81.25	81.60	81.70	81.75	81.75	82.17	81.70	81.83	2 12
9	81 85	81.90	82.15	82.20	82.35	82.40	82.50	82.50	82.50	82.50	3 12
10	82.55										4 12

..... indicates that no observation was taken.
1 division of scale = 2′.32, (corrected for torsion.)

J. Cruikshank, observer from . . . . 4 30 P. M. to 9 0 P. M.
Messrs. Gordon, Bagwell, Hooe, Reed, and Dunglison, observers from . . . . 9 6 to 7 24 A. M.
J. Cruikshank, observer from . . . . 7 30 A. M. to 9 12

J. Reed, observer from . . . . . 9 18 A. M. to 10 0 A. M.
J. E. Hilgard, observer from . . . . 10 6 to 10 12
Charles A. Schott, observer from . . . 10 18 to 1 18 P. M.

APRIL 23 and 24, 1851.

Göttingen mean time.	0 m.	6 ms.	12 ms.	18 ms.	24 ms.	30 ms.	36 ms.	42 ms.	48 ms.	54 ms.	Washington mean time.
10 P. M.	.....	.....	80.25	79.90	78.90	78.60	78.50	78.70	78.90	79.85	4 12 P. M.
11	79.85	80.05	81.80	81.10	81.02	81.00	80.90	81.25	81.55	81.45	5 12
12	81.20	81.10*	.....	81.30	80.50	81.03	80.75	80.75	80.50	80.50	6 12
1 A. M.	80.40	80.45	80.95	81.95	83.30	83.30	82.60	82.00	81.60	81.50	7 12
2	81.60	81 40	81.25	81.15	81.40	81.40	81.05	81.08	81.27	81.50	8 12
3	80.12	81.95	81.75	81.83	81.96	82.94	82.39	82.55	82.58	82.95	9 12
4	83.00	82.65	82.50	82.50	82.38	82.06	82.21	82.30	82.74	82.28	10 12
5	82.00	81.94	81.70	81.76	81.75	82 00	81.95	81.95	82.60	82.90	11 12
6	83.20	83.25	82.85	82.55	82.20	82.50	82.45	83.50	83.05	83.80	12 12
7	83.70	83.70	84.00	84.25	84.05	84.20	84.42	84.20	84.10	84.30	1 12 A. M.
8	84.60	85.05	85.30	84.95	83.95	83.60	83.05	82.87	82.15	81.45	2 12
9	81.25	81.45	81.95	82 65	82.72	83.45	83.75	84.50	84.55	84.65	3 12
10	84.75	84.65	84.65	84.40	84.45	84.40	84.30	84.35	84.48	84.60	4 12
11	84.60	84.95	84.95	85.00	85.10	84.80	84.80	84.90	85.00	85.00	5 12
12	85.05	85.05	....	83.90	84.00	84.55	84.50	84.60	84.67	84.50	6 12
1 P. M.	84.30	84.50	84.30	84.50	84.35	83.50	84.50	84.75	84.35	84.90	7 12
2	84.50	84.60	84.40	84.62	84.30	84.52	84.60	84 52	84.60	84.40	8 12
3	84.50	82.75	83.10	82.00	82.50	85.10	85.25	85.50	85.50	85.40	9 12
4	85.05	85.50	86 05	86.20	86.10	85.85	85.70	85.25	85.25	85.10	10 12
5	84.85	84.70	84.55	84.40	84.05	84.10	.. ..†	82.65	82.50	82.35	11 12
6	82.05	81.10	80.92	80.87	81.42	81.55	80.55	80.95	81.10	81.12	12 12
7	83.10	80 15	79.10	79.30	79 37	79.95	79.95	79.37	78.95	80.25	1 12 P. M.
8	79.12	78.65	79.00	78.90	78.70	78.80	79.05	79.00	79.37	79.30	2 12
9	79.37	79.35	79.82	80.42	80.95	81.45	81.60	81.37	81.50	81.50	3 12
10	81.50										4 12

* The lamp illuminating the scale was found magnetic, and was removed after 12h. 6m. Göttingen time.

† Instrument jarred.

Value of 1 division of scale as before.

J. E. Hilgard, observer from . . . 4 24 P. M. to 7 42 P. M.
C. A. Schott, observer from . . . 7 48 to 11 42
G. Rumpf, observer from . . . 11 48 to 4 6 A. M.

S. Tyndale, observer from . . . 4 12 A. M. to 8 6 A. M.
J. E. Hilgard, observer from . . . 8 12 to 12 18 P. M.
J. Reed, observer from . . . . 12 24 P. M. to 4 12

MAY 30 and 31, 1851.

Göttingen mean time.	0 m.	6 ms.	12 ms.	18 ms.	24 ms.	30 ms.	36 ms.	42 ms.	48 ms.	54 ms.	Washington mean time.
10 P. M.	80.00	79.90	80.25	81.28	80.35	80.50	80.30	80.65	81.00	81.10	4 12 P. M.
11	81.10	81.20	81.05	81.20	81.25	81.10	81.10	81.25	81.50	81.50	5 12
12	81.50	81.45	81.50	81.50	81.55	81.60	81.60	81.60	81.60	81.70	6 12
1 A. M.	81.70	81.60	81.80	81.75	81.65	82.05	82.05	82.00	81.95	82.10	7 12
2	82.10	82.05	82.00	80.95	80.95	81.00	80.97	81.00	80.92	80.95	8 12
3	80.92	80.90	81.00	80.92	80.95	80.95	81.27	81 35	81.65	81.70	9 12
4	81.70	81.75	81.85	82.05	82.20	82.15	82.02	81.85	81.60	81.67	10 12
5	81.70	81.70	81.65	81.45	81.55	81.40	81.10	81.10	81.15	81.20	11 12
6	81.07	80.95	80.97	80.90	80.95	80.95	81.00	81.02	81.20	81.26	12 12
7	81.31	81 30	81.29	81.30	81.40	81.35	81 30	81.28	81.26	81.30	1 12 A. M.
8	81.30	81.37	81.45	81.37	81.30	80.75	80.67	80.45	80.40	80.55	2 12
9	80.45	80.47	80.65	80.55	80.60	80.90	81.00	81.20	81.30	81.50	3 12
10	81.60	81.75	81.80	81.90	82.20	82.50	82.55	82.60	82.65	82.70	4 12
11	82.85	82.90	82.90	82.90	83.10	83.10	83.20	83.45	83.60	83.80	5 12
12	83.90	84.10	84.10	84.10	84.00	84.00	84.05	84.05	84.10	84.10	6 12
1 P. M.	84.10	84.00	84.10	84.13	84.15	84.15	84.00	83.95	83.85	83.70	7 12
2	83.60	83.60	83.60	83.50	83.50	83.40	83.35	83.10	83.05	83.10	8 12
3	82.90	82.90	82.80	82.70	82.30	82.20	81.15	82.25	82.15	81.80	9 12
4	82.00	81.90	81.70	81.70	81.55	81.40	81.20	81.10	81.00	81.00	10 12
5	80.80	80.85	80.65	80.55	80.75	80.55	80.37	80.30	80.30	80.25	11 12

MAY 30 and 31, 1851—Continued.

Göttingen mean time.	0 m.	6 ms.	12 ms.	18 ms.	24 ms.	30 ms.	36 ms.	42 ms.	48 ms.	54 ms.	Washington mean time.
6 P. M.	80.20	80.05	79.95	80.05	80.00	79.95	79.95	.....	80.00	79.78	12 12 A. M.
7	79.75	79.55	79.50	79.55	79.50	79.50	79.50	79.60	79.60	79.50	1 12 P. M.
8	79.60	79.60	79.65	79.50	79.80	79.75	79.75	79.85	79.95	80.00	2 12
9	80.00	80.10	80.10	80.15	80.25	80.15	80.25	.....	80.35	80.42	3 12
10	.....										4 12

J. Reed, observer from . . . . 4 12 P. M. to 8 0 P. M.
G. Rumpf, observer from . . . 8 6 to 12 18 A. M.
C. A. Schott, observer from . . . 12 24 A. M. to 3 36
S. Tyndale, observer from . . . 3 42 to 8 12
J. Reed, observer from . . . . 8 18 A. M. to 11 30 A. M.
J. Cruiksbank, observer from . . 11 36 to 2 42 P. M.
W. W. Gordon, observer from . . 2 48 P. M. to 4 6

JUNE 18 and 19, 1851.

Göttingen mean time.	0 m.	6 ms.	12 ms.	18 ms.	24 ms.	30 ms.	36 ms.	42 ms.	48 ms.	54 ms.	Washington mean time.
10 P. M.	.....	71.62	71.55	71.42	71.40	71.15	71.10	70.92	69.40	69.25	4 12 P. M.
11	69.05	69 05	69.15	68.90	68.65	68.60	68.65	68.55	68.40	68.40	5 12
12	68.32	68.30	68.10	67.90	67.75	67.80	67.80	67 80	67.85	67.85	6 12
1 A. M.	67.75	67.65	67 65	67.85	68.00	68.00	67.95	68.05	68.15	68.15	7 12
2	67.22	67.20	67.30	67.15	67.40	67.37	67.30	67.50	67.45	67.55	8 12
3	67.30	67.30	67.42	67 67	67.70	67.70	67.75	67.70	67.90	67.80	9 12
4	67.75	67.65	67.60	67.52	67.45	67.50	67.15	67.65	67.70	67.65	10 12
5	67.70	67.60	67.70	67.40	67.60	67.75	67.70	67.70	67.70	67.65	11 12
6	67.60	67.55	67.45	67.45	67.35	67.40	67.30	67.25	67.30	67.20	12 12
7	67.25	67.20	67.20	67.20	67.20	67.15	67.10	67.10	67.10	67.10	1 12 A. M.
8	67.05	67.05	67.00	67.00	67.05	67.00	67.05	67.15	67.25	67.25	2 12
9	67.15	67.05	67.20	67.05	66.85	67.00	66 90	66.80	66.70	66.90	3 12
10	66.90	66.75	66.80	66.70	66.65	66.55	66.60	66.37	66.30	66.17	4 12
11	66.05	66.05	66.17	66.15	66 05	66.00	66.00	66.00	65.80	65.60	5 12
12	65.70	65.70	65.70	65.75	65.40	65.20	65.05	65.07	65.00	65.00	6 12
1 P. M.	64.85	64.90	64.87	64.87	64 85	64.70	64.75	64.75	64.65	64.55	7 12
2	64.55	64.55	64.55	65.20	65.20	64.60	64.75	64.75	64.75	64.75	8 12
3	64.95	65.50	65.30	65.50	65.50	65 50	65.50	65.55	65.95	66.20	9 12
4	66 30	66.55	66 90	67.00	66.70	68.37	67.40	67.50	67.50	68.10	10 12
5	67.85	67.95	68 05	68.10	68.10	68.10	68.40	68.40	68.45	68.55	11 12
6	68.65	68.70	68.75	68.85	68 85	68.95	69.05	69.05	68.95	68 95	12 12
7	69.45	69.45	69.60	69.10	69.20	69.25	69.15	69.10	69.10	69.20	1 12 P. M.
8	68.92	69.05	69.05	69.20	69.07	69.15	68.95	69.05	69.10	69.30	2 12
9	69.10	68.95	69.35	69.20	69.30	68 95	69.40	69.22	69.30	69.90	3 12
10	69.45										4 12

Instrument used, declinometer No. 3, United States Coast Survey. Increasing readings denote a westerly movement of the north end of the magnet. Value of 1 division of scale 2'.21, (corrected for torsion.) The above observations are all taken half a minute later than indicated in the table.

H. Ginder, observer from . . . . 4 18 P. M. to 8 12 P. M.
J. Reed, observer from . . . . . 8 18 to 11 36
G. Rumpf, observer from . . . . 11 42 to 4 12 A. M.
C. A. Schott, observer from . . . 4 18 A. M. to 8 00
S. Tyndale, observer from . . . 8 6 A. M. to 10 6 A. M.
C. T. Jardella, observer from . . . 10 12 to 1 18 P. M.
H. Ginder, observer from . . . . 1 24 P. M. to 4 12

JULY 23 and 24, 1851.

Göttingen mean time.	0 m.	6 ms.	12 ms.	18 ms.	24 ms.	30 ms.	36 ms.	42 ms.	48 ms.	54 ms.	Washington mean time.
10 P. M.	78.67	78.62	78.42	78.55	78.25	78.10	78.07	.....	78.00	77.95	4 12 P. M.
11	78.00	78.00	78 00	78.00	77.90	78.10	78.07	78.10	78 07	78.20	5 12
12	78 30	78.50	78.40	78.00	77.95	77.77	77.80	78.05	78.05	78.22	6 12
1 A. M.	78.20	78 05	78.00	78.00	78.20	78.15	78.25	78.35	78.10	78.05	7 12
2	78.10	78.05	78.05	78.10	78.27	78.37	78.57	78.43	78.20	78.27	8 12

JULY 23 and 24, 1851—Continued.

Göttingen mean time.	0 m.	6 ms.	12 ms.	18 ms.	24 ms.	30 ms.	36 ms.	42 ms.	48 ms.	54 ms.	Washington mean time.
3 A. M.	78.20	78.17	78.13	78.33	78.10	78.00	78.00	77.90	78.00	78.00	9 12 P. M.
4	78.00	78.00	78.00	77.90	77.90	77.90	77.80	77.90	77.90	77.70	10 12
5	77.50	77.55	77.70	77.50	77.60	77.70	77.75	77.50	77.40	77.40	11 12
6	77.30	77.30	77.20	77.30	77.40	77.20	77 10	77.10	77.10	77.20	12 12
7	77.10	77.10	77.10	77.10	77.10	77.00	77.00	77.00	77.00	77.00	1 12 A. M.
8	77.00	77.00	77.00	77.00	77.00	77.00	77.00	77.00	77.00	77.00	2 12
9	77.00	77.00	76.90	76.60	76.50	76.30	76.40	76 50	77.00	77 10	3 12
10	77.30	77.20	77.20	76.90	76.50	76.10	76.00	75 50	75.10	75.10	4 12
11	74.85	74 60	74.60	74.50	74.45	74.30	74.40	74.30	74.50	74.30	5 12
12	74.50	73 75	73.50	73.75	74.00	74.10	74.70	74.80	75.00	75.25	6 12
1 P. M.	75.50	75.60	75.60	75.90	75.90	75.75	75.80	76.00	76.10	75.85	7 12
2	75.90	76.00	76.00	75.95	76.45	76.40	76.35	76.65	77.85	78.45	8 12
3	78.45	78.50	78.50	78.50	78.30	78.35	78.35	78.35	78.45	78.50	9 12
4	78.65	78.80	78 85	79.35	79.50	79.50	79.80	79.80	79.80	79.90	10 12
5	80.10	80.25	80.35	80.40	80.55	80.75	80.90	80.70	80.85	80.90	11 12
6	80.90	81.00	80 80	80.80	80.80	81.00	80.00	80.00	80.90	80.85	12 12
7	80.75	80.80	81.50	80.80	80.70	80.75	80.70	80.85	80.75	80.55	1 12 P. M.
8	80.70	80.75	80 00	80.90	80.75	80.97	80.72	80.75	80.60	80.55	2 12
9	80.55	80.50	80.35	80.30	80.25	79.95	79.90	79.87	79.80	79.65	3 12
10	79.60										4 12

H. Ginder, observer from . . . . 4 12 P. M. to 8 6 P. M.
A. S. Wadsworth, observer from . 8 12 to 12 6 A. M.
G. Rumpf, observer from . . . . 12 12 A. M. to 5 00

——— ———? observer from . . . 5 6 A. M. to 7 48 A. M.
H. Ginder, observer from . . . . 7 54 to 1 00 P. M.
J. T. Hoover, observer from . . . 1 12 P. M. to 4 12

AUGUST 29 and 30, 1851.

Göttingen mean time.	0 m.	6 ms.	12 ms.	18 ms.	24 ms.	30 ms.	36 ms.	42 ms.	48 ms.	54 ms.	Washington mean time.
10 P. M.	77 50	77.70	77.85	77.85	78.00	78.00	77.30	77.60	78.55	78.50	4 12 P. M.
11	78.25	77.55	76.75	75.45	74.55	74.95	75.00	74.90	74.75	74.25	5 12
12	79.40	79.65	80.85	78.20	78.70	78 60	79.65	81.07	82.10	82.50	6 12
1 A. M.	82.10	81.57	80.85	80 40	79.40	79.75	81.30	81.85	80.60	79.42	7 12
2	78.65	77.90	76.70	77.05	78.80	81.50	82.25	81.55	77.00	76.15	8 12
3	76.00	77.60	79.00	79.15	78.70	79.32	79.67	80.00	79.80	79.70	9 12
4	79.45	79.45	80.00	80.15	80.55	80.50	80.82	81.15	81.95	82.08	10 12
5	82.85	73.10	73.00	73.45	77.15	78.25	77.75	82.50	83.50	82.85	11 12
6	82.75	82.45	82.15	81.90	81.60	81.90	82.45	82.85	82.00	81.90	12 12
7	83.42	83.20	83.15	83.17	83.72	83.72	83.67	83.35	82.95	82.37	1 12 A. M.
8	82.20	82.00	81.85	81.42	80.92	80.77	80.60	80.47	80.90	80.75	2 12
9	80.75	80.72	80.60	80.80	81.45	81.65	81.72	81.65	81.90	82.00	3 12
10	81.50	81.85	82.90	83.70	83.52	83.17	82.60	82.45	82.07	81.75	4 12
11	81.50	80.77	80.25	80.30	80.05	79.57	79.20	79.10	79.22	78.80	5 12
12	78.55	78.40	78.15	78.20	78.00	77.77	77.55	77.95	77.95	77.75	6 12
1 P. M.	77.75	77.97	77 65	77.40	73.50	73.45	73.20	73.65	74.00	74.00	7 12
2	74.30	74.95	73.95	74.15	74 40	74.40	74.60	75.37	75.40	75.40	8 12
3	75.35	75.80	76.00	76.15	76.45	76.55	77.05	75.95	76.00	76.30	9 12
4	76.35	76.90	77.47	77.70	77.80	78.20	77.90	77.50	77.55	78 00	10 12
5	77.70	78.45	78.65	78.55	78.50	79.00	78.35	78.40	79.02	79.50	11 12
6	79 50	79.25	79.65	79 25	80.20	80.35	81.00	81.55	81.92	82.00	12 12
7	81.00	81.00	80.45	80.70	79 97	80.00	79.75	79.77	79.25	79.10	1 12 P. M.
8	79.25	79.90	79.50	79.90	79.60	79 50	79.35	79.15	80.00	79.10	2 12
9	79.00	78.85	78.50	78.60	78.75	78.55	78.25	78.00	77.90	77.85	3 12
10	77.75										4 12

H. Ginder, observer from . . . . 4 11 P. M. to 8 11 P. M.
J. C. Tennent, observer from . . 8 17 to 11 17
J. T. Hoover, observer from . . . 11 23 to 4 11 A. M.

C. A. Schott, observer from . . . 4 17 A. M. to 8 5 A. M.
G. Rumpf, observer from . . . . 8 11 to 12 11 P. M.
G. W. Stevens, observer from . . 12 17 to 4 17

SEPTEMBER 24 and 25, 1851.

Göttingen mean time.	0 m.	6 ms.	12 ms.	18 ms.	24 ms.	30 ms.	36 ms.	42 ms.	48 ms.	54 ms.	Washington mean time.
10 P. M.	81.70	81.65	81.45	81.25	81.22	81.50	81.70	81.70	81.30	81.10	4 12 P. M.
11	81.00	79.80	79.55	79.75	78.90	78.55	78.30	78.95	79.25	79.20	5 12
12	79.35	79.55	80.35	80.35	80.10	80.05	80.30	80.70	81.05	81.10	6 12
1 A. M.	81.45	81.15	81.50	81.40	81.10	81.00	81.10	81.37	81.35	81.65	7 12
2	81.60	81.65	81.40	81.50	81.30	81.60	81.40	81.47	81.60	81.50	8 12
3	81.20	81.10	81.10	81.10	81.10	81.05	81.30	81.35	81.00	81.05	9 12
4	81.00	81.00	81.00	81.10	81.10	81.10	81.50	81.65	81.50	81.10	10 12
5	81.10	81.40	81.80	81.70	81.45	81.20	81.37	81.35	81.15	81.10	11 12
6	81.10	81.10	81.15	81.20	81.12	81.10	81.12	81.10	81.10	81.05	12 12
7	81.00	80.85	80.80	80.80	80.75	80.75	80.80	80.92	80.90	80.80	1 12 A. M.
8	80.77	80.83	80.72	80.82	80.77	80.87	80.82	80.72	80.77	80.65	2 12
9	80.82	80.80	80.72	80.70	80.70	80.65	80.60	80.55	80.60	80.62	3 12
10	80.50	80.50	80.50	80.50	80.50	80.50	80.40	80.40	80.40	80.42	4 12
11	80.25	80.20	80.05	80.05	80.00	80.05	80.05	80.05	79.85	79.75	5 12
12	79.55	79.65	79.62	79.50	79.55	79.50	79.40	79.37	79.10	79.15	6 12
1 P. M.	79.45	79.45	79.35	79.15	79.30	79.40	79.50	79.50	79.60	79.47	7 12
2	79.65	79.07	79.10	79.40	79.50	79.50	79.55	79.55	79.50	79.62	8 12
3	79.50	79.60	79.70	79.90	80.00	80.00	80.00	80.05	80.27	80.50	9 12
4	80.55	80.55	80.65	80.70	80.90	80.95	80.95	80.90	81.00	81.10	10 12
5	81.25	81.50	81.60	81.70	82.00	82.15	82.20	82.30	82.30	82.20	11 12
6	82.50	82.75	82.80	83.00	83.00	82.95	83.05	83.00	83.00	83.05	12 12
7	83.05	83.00	82.95	82.90	82.90	82.92	82.85	82.70	82.65	82.50	1 12 P. M.
8	82.60	82.50	82.45	82.30	82.40	82.40	82.15	82.05	81.87	81.85	2 12
9	82.00	81.70	81.60	81.45	81.50	81.30	81.25	81.25	81.05	81.05	3 12
10	81.00										4 12

——— ———, observer from . . 4 12 P. M. to 12 6 A. M.
J. T. Hoover, observer from . . 12 12 A. M. to 4 6
G. Rumpf, observer from . . . 4 12 to 8 0
C. A. Schott, observer from . . 8 6 A. M. to 12 6 P. M.
H. Ginder, observer from . . . 12 12 P. M. to 3 6
——— ———, observer from . . 3 12 to 4 12

OCTOBER 22 and 23, 1851.

Göttingen mean time.	0 m.	6 ms.	12 ms.	18 ms.	24 ms.	30 ms.	36 ms.	42 ms.	48 ms.	54 ms.	Washington mean time.
10 P. M.	82.40	82.45	82.35	82.35	82.40	82.40	82.35	82.35	82.30	82.25	4 12 P. M.
11	82.40	82.30	82.17	82.05	82.10	82.25	82.60	82.90	83.00	83.05	5 12
12	83.05	83.00	82.95	82.80	82.90	82.80	82.65	82.60	82.45	82.20	6 12
1 A. M.	82.10	82.25	82.25	82.25	82.20	82.40	82.20	82.10	82.17	81.80	7 12
2	81.40	81.70	81.92	81.50	81.35	81.65	81.60	81.67	81.80	82.00	8 12
3	81.95	81.90	81.55	81.32	81.25	81.35	81.50	81.55	81.90	81.85	9 12
4	81.75	81.95	82.00	82.00	82.00	82.00	81.85	81.95	82.00	82.15	10 12
5	82.10	82.20	82.12	81.95	81.70	81.80	82.00	81.85	82.00	82.15	11 12
6	82.50	82.40	82.30	82.50	82.40	82.35	82.45	82.45	82.65	82.50	12 12
7	82.10	82.15	82.10	82.05	81.80	81.80	81.90	81.65	81.75	81.85	1 12 A. M.
8	81.95	81.90	81.90	81.70	81.70	81.62	81.60	81.70	81.70	81.70	2 12
9	81.55	81.50	81.45	81.47	81.35	81.32	81.10	81.10	81.20	81.55	3 12
10	81.77	81.75	81.60	81.50	81.50	81.65	81.65	81.52	81.50	81.25	4 12
11	81.55	81.85	81.20	82.50	82.35	82.50	82.40	82.05	81.47	81.10	5 12
12	80.45	80.10	79.90	79.67	79.15	79.00	78.90	78.50	78.50	78.40	6 12
1 P. M.	78.50	78.65	77.90	77.77	78.05	78.20	77.90	77.77	77.85	77.80	7 12
2	77.95	78.00	78.00	79.00	79.37	78.92	78.45	78.10	79.25	80.55	8 12
3	85.62	85.25	84.35	83.90	83.90	83.90	84.05	.....	.....	.....	9 12
4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10 12
5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	11 12
6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	12 12
7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1 12
8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2 12
9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3 12
10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4 12

At 3h. 42m. P. M., Göttingen time, the observations had to be suspended on account of the removal of an iron railing in front of the house; and the observations after 3 o'clock should be rejected.

——— ———, observer from . . . . 4 12 P. M. to 12 9 A. M.
J. T. Hoover, observer from . . . . 12 13 A. M. to 4 25
G. Rumpf, observer from . . . . . 4 31 A. M. to 8 1 A. M.
C. A. Schott, observer from . . . . 8 7 to 8 49

MAGNETIC TERM-DAY OBSERVATIONS

AT THE

MAGNETIC OBSERVATORY ON D STREET NORTH, NEAR SECOND STREET WEST; AND FROM AND AFTER SEPTEMBER ON FOUR-AND-A-HALF STREET WEST, NEAR AND NORTH OF PENNSYLVANIA AVENUE, WASHINGTON, D. C.

D street observatory, lat. 38° 53′ 38″; long. 77° 0′ 33″ (5*h*. 8*m*. 2*s*.) W. of Greenwich.
4½ street observatory, lat. 38° 53′ 31″; long. 77° 0′ 44″ (5*h*. 8*m*. 3*s*.) W. of Greenwich.

DIFFERENTIAL OBSERVATIONS OF DECLINATION IN 1852.

The instruments used were declinometer No. 3, United States Coast Survey; and after July 7, declinometer 20, Coast Survey No. 2. Increasing telescopic readings indicate a westerly movement of the north end of the magnet for declinometer No. 3, and the reverse motion for declinometer No. 2.

The observations were taken in a wooden building temporarily erected in the yard of a house occupied by Assistant Hilgard.

MARCH 24 and 25, 1852.

Göttingen mean time.	0 m.	5 ms.	10 ms.	15 ms.	20 ms.	25 ms.	30 ms.	35 ms.	40 ms.	45 ms.	50 ms.	55 ms.	Washington mean time.
10 P. M.	92.55	92.73	92.52	92.95	92.80	92.15	92.15	92.02	91.95	92.00	92.15	92.10	4 12 P. M.
11	91.85	92.35	91.85	91.85	91.80	91.75	91.65	91.70	91.75	91.85	91.80	91.80	5 12
12	91.90	91.90	91.85	91.80	91.85	92.15	91.90	91.80	92.00	91.95	.....	.....	6 12
1 A. M.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	7 12
2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8 12
3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9 12
4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10 12
5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	11 12
6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	12 12
7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1 12 A. M.
8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2 12
9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3 12
10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4 12
11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5 12
12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6 12
1 P. M.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	89.55	7 12
2	89.55	89.50	89.40	89.40	89.35	89.25	89.35	89.35	89.25	89.40	89.52	89.50	8 12
3	89.50	89.55	89.55	89.60	89.70	89.80	89.90	89.95	90.00	90.15	90.40	90.45	9 12
4	90.55	90.75	90.80	91.00	91.05	91.10	91.37	91.50	91.70	91.80	91.90	92.00	10 12
5	92.05	92.30	92.45	92.60	92.80	92.90	93.00	93.20	93.50	93.67	93.80	93.87	11 12
6	93.90	94.00	94.05	94.10	94.10	94.40	94.40	94.40	94.50	94.50	94.50	94.50	12 12
7	94.50	94.50	94.50	94.50	94.45	94.35	94.50	94.35	94.30	94.20	94.20	94.20	1 12 P. M.
8	94.00	94.00	94.00	94.00	94.00	94.00	93.85	93.75	93.85	93.75	93.60	93.60	2 12
9	93.50	93.50	93.50	93.50	93.60	93.50	93.20	93.35	93.20	93.10	93.10	93.10	3 12
10	93.30												4 12

..... indicates interruption of observations by the stopping of the watch.
1 division of scale of declinometer No. 3 equals 9″.21.

G. Rampf, observer from . . . . . 4 12 P. M. to 6 57 P. M.
——— ———, observer from . . . . 8 6 A. M. to 1 15
J. T. Hoover, observer from . . . . 1 20 P. M. to 4 15 P. M.

APRIL 21 and 22, 1852.

Göttingen mean time.	0 m.	6 ms.	12 ms.	18 ms.	24 ms.	30 ms.	36 ms.	42 ms.	48 ms.	54 ms.	Washington mean time.
10 P. M.	91.45	91.80	91.05	91.55	90.65	90.90	91.75	92.30	91.15	89.55	4 12 P. M.
11	89.75	79.25	86.55	89.32	86.82	87.15	86.72	87.15	87.55	87.57	5 12
12	88.10	88.15	88.80	88.65	85.20	86.20	87.07	87.50	86.62	83.47	6 12
1 A. M.	81.35	85.85	86.60	86.80	86.05	86.15	86.05	86.22	89.15*	87.55	7 12
2	86.20	85.67	86.10	85.65	85.02	85.35	86.45	86.60	85.75	85.15	8 12
3	85.10	84.90	84.70	84.85	85.75	86.50	86.65	86.60	84.97	82.95	9 12
4	82.50	82.60	82.90	83.10	84.15	85.25	86.35	87.00	87.65	88.00	10 12
5	88.75	87.25	87.60	87.50	87.50	87.50	87.27	86.72	86.30	86.50	11 12
6	86.55	87.00	87.20	87.25	87.35	87.20	87.50	87.50	88.00	88.50	12 12
7	88.65	89.00	89.20	89.20	89.00	89.00	88.80	88.60	88.50	88.80	1 12 A. M.
8	88.90	89.00	89.20	89.00	88.75	88.45	88.20	87.90	87.35	87.40	2 12
9	87.25	86.80	86.90	86.90	87.00	87.10	87.35	87.65	87.85	87.85	3 12
10	87.80	87.95	88.15	88.45	88.90	88.65	89.35	88.35	88.25	88.50	4 12
11	88.35	87.00	87.10	87.15	87.10	87.05	86.90	86.90	86.60	85.40	5 12
12	86.00	86.00	86.90	87.00	86.35	86.20	86.30	86.30	85.90	85.60	6 12
1 P. M.	85.95	86.75	86.90	86.90	86.65	86.10	85.50	85.40	85.50	85.50	7 12
2	86.00	85.92	86.25	86.10	85.90	86.15	86.55	86.40	86.05	86.10	8 12
3	85.75	85.57	85.65	86.02	86.32	86.37	86.45	86.55	86.60	86.67	9 12
4	86.77	86.67	86.65	86.95	87.15	87.70	87.70	87.90	88.45	88.55	10 12
5	88 50	88.65	88.75	88.77	89.05	89.20	89.55	89.52	89.85	89.60	11 12
6	89.92	89.70	90.00	90.00	90.10	89.90	90.10	90.10	90.10	90.10	12 12
7	90.10	90.10	90.35	90.65	90.70	90.70	90.80	91.00	90.90	90.90	1 12 P. M.
8	90.60	91.00	90.50	90.60	90.50	90.60	90.70	90.85	90.80	90.90	2 12
9	91.00	91.10	91.50	91.50	91.70	91.35	91.10	91.45	91.30	.....	3 12
10	.....										4 12

..... indicates that no observation was taken.

* Instrument jarred. The disturbances are remarkable, and probably have some connexion with the great storm passing at the time over a great extent of the country.

——— ———, observer from . . 4 12 P. M. to 8 0 P. M.
G. Rumpf, observer from . . . 8 6 to 11 24
J. T. Hoover, observer from . . . 11 30 to 4 42 A. M.

——— ———, observer from . . 4 48 A. M. to 8 18 A. M.
G. Rumpf, observer from . . . 8 24 to 12 12 P. M.
——— ———, observer from . . 12 18 P. M. to 4 12

MAY 28 and 29, 1852.

Göttingen mean time.	0 m.	6 ms.	12 ms.	18 ms.	24 ms.	30 ms.	36 ms.	42 ms.	48 ms.	54 ms.	Washington mean time.
10 P. M.	79.70	80.00	79.90	79.85	79.85	79.65	79.45	79.30	79.25	79.25	4 12 P. M.
11	79.10	78.90	78.65	78.45	78.35	78.25	78.35	78.10	77.70	77.20	5 12
12	77.10	77.40	77.55	77.75	78.00	78.15	78.05	78.05	78.35	78.25	6 12
1 A. M.	78.15	78.90	78.90	79.00	79.15	79.00	79.00	79.05	79.10	79.12	7 12
2	79.60	79.15	79.10	79.02	79.00	79.00	78.37	77.55	77.20	77.50	8 12
3	77.05	77.15	77.30	77.35	77.87	78.42	79.32	79.00	78.90	79.30	9 12
4	79.95	80.15	79.70	79.15	78.90	78.90	79.25	79.35	79.60	79.60	10 12
5	79.50	79.25	79.00	78.90	78.62	78.60	78.50	78.40	78.50	78.65	11 12
6	78.90	79.00	79.10	79.15	79.35	79.30	79.20	79.20	79.20	79.00	12 12
7	79.00	79.00	79.10	79.10	79.10	78.90	79.00	79.00	78.90	79.00	1 12 A. M.
8	79.00	79.10	78.90	78.80	79.00	79.00	78.90	78.80	79.00	78.50	2 12
9	78.60	78.65	78.50	78.50	78.40	78.40	78.50	78.50	78.70	78.70	3 12
10	78.45	78.50	78.50	78.50	78.50	78.35	78.10	78.10	78.00	77.90	4 12
11	77.65	77.65	77.85	77.40	77.30	77.35	77.20	77.35	77.15	77.10	5 12
12	77.00	76.75	76.75	76.75	76.85	76.75	76.60	76.50	76.40	76.35	6 12
1 P. M.	76.35	76.50	76.50	76.50	76.60	76.65	78.00	77.95	78.05	77.85	7 12
2	77.90	78.20	78.10	78.15	78.30	78.40	78.60	78.70	78.80	78.90	8 12
3	79.00	79.20	79.40	79.60	79.40	79.50	79.70	79.75	80.00	80.20	9 12
4	80.70	81.00	81.10	81.35	81.50	81.80	82.00	82.20	82.50	82.80	10 12
5	82.70	82.75	82.85	82.95	83.05	83.10	83.20	83.30	83.30	83.25	11 12
6	83.10	83.25	83.25	83.25	83.25	83.25	83.25	83.15	83.10	83.00	12 12
7	83.00	83.00	83.00	82.95	83.00	82.95	82.90	82.90	82.85	82.85	1 12 P. M.
8	82.65	82.60	82.50	82.50	82.30	82.30	82.25	82.20	82.20	82.05	2 12
9	82.00	82.00	81.90	81.90	81.90	81.75	81.75	81.65	81.40	81.20	3 12
10	81.10										4 12

——— ———, observer from . . 4 12 P. M. to 11 42 P. M.
J. T. Hoover, observer from . . 11 48 to 4 12 A. M.
E. G. Keber, observer from . . . 4 18 A. M. to 9 54

——— ———, observer from . . 10 0 A. M. to 12 6 P. M.
J. T. Hoover, observer from . . 12 12 P. M. to 4 12

JUNE 23 and 24, 1852.

Göttingen mean time.	0 m.	6 ms.	12 ms.	18 ms.	24 ms.	30 ms.	36 ms.	42 ms.	48 ms.	54 ms.	Washington mean time.
10 P. M.	83.65	83.65	83.50	83.30	83.40	83.10	83.05	83.15	83.20	83.15	4 12 P. M.
11	83.00	82.90	82.80	82.80	82.75	82.70	82.75	82.80	82.70	82.70	5 12
12	82.60	82.60	82.55	82.50	82.50	82.60	82.70	82.75	82.75	82.80	6 12
1 A. M.	82.90	82.90	82.90	82.90	82.80	82.70	82.50	82.52	82.50	82.65	7 12
2	82.80	82.80	82.50	82.55	82.70	82.85	83.00	82.95	83.10	82.95	8 12
3	83.40	82.90	82.77	82.65	82.70	82.87	82.85	82.75	82.65	82.40	9 12
4	82.65	82.55	82.50	82.30	82.32	82.15	82.05	82.00	81.95	82.00	10 12
5	81.85	81 32	80.70	80.35	80.25	80.20	80.50	80.90	80.95	80.90	11 12
6	80.85	80.95	80.95	80.70	80.65	80.15	80.30	80.20	80.05	79.95	12 12
7	80.05	80.40	80.65	80.65	80.65	80.60	80.65	80.85	81.00	81.00	1 12 A. M.
8	81.00	81.05	81.10	81.00	80.85	80.90	80.95	80.90	80.90	80.90	2 12
9	80.90	80.90	80 90	80.90	80.90	80.90	80.65	80.75	80.65	80.60	3 12
10	80.60	80.85	80.85	80.87	81.00	81.15	81.90	81.75	81.85	82.00	4 12
11	82.05	82.00	82.00	81.60	81.50	81.15	80.70	80.65	80.40	80.00	5 12
12	79.95	79.40	79.60	79.50	78.75	78.75	78.75	78.70	78.70	78.55	6 12
1 P. M.	78.45	78.45	78.40	78 40	78.40	78.50	78.35	78.30	78.50	78.35	7 12
2	78.50	78.50	78.40	78.15	78.50	78.75	78.65	78.65	78.60	78.75	8 12
3	78.75	78.90	79.10	79.20	79.35	79.45	79.50	79.80	79.90	79 90	9 10
4	80.25	80.25	80.50	80 90	81.10	81.20	81.30	81.40	81.45	81.50	10 12
5	81.65	81.75	81.75	81.90	82.10	82.20	82.20	82.15	82.10	82.05	11 12
6	82.00	82.05	82.10	82.20	82.10	82.00	81.95	81.95	81.95	81.90	12 12
7	81.95	82.10	82.15	82.15	82.17	82.25	82.30	82.27	82.20	82.15	1 12 P. M.
8	82.10	82.22	82.27	82.25	82.25	82.20	82 27	82.32	82.30	82.27	2 12
9	82.20	82.15	82.10	.....	.....	.....	.....	.....	.....	.....	3 12
10	.....										4 12

..... indicates that no observation was taken.

G. Rumpf, observer from . . . 8 0 P. M. to 11 42 P. M.
J. T. Hoover, observer from . . 11 48 to 7 42 A. M.

G. Rumpf, observer from . . . 12 42 A. M. to 3 24 P. M.
(The other observers are not known.)

JULY 21 and 22, 1852.

Göttingen mean time.	0 m.	6 ms.	12 ms.	18 ms.	24 ms.	30 ms.	36 ms.	42 ms.	48 ms.	54 ms.	Washington mean time.
10 P. M.	83.80	83.75	83.70	83.70	83.85	84.00	84.05	84.15	84.25	84.40	4 12 P. M.
11	84.65	84.80	84.75	84.70	84.90	84.90	85.00	85.05	85.20	85.10	5 12
12	85.30	85.20	85.40	85.40	85.40	85.35	85.40	84.70	84.75	84.65	6 12
1 A. M.	84.80	84.75	84.75	84.65	84.60	84.65	84.75	84.98	84.75	84.60	7 12
2	84.75	84.70	84.75	84.70	84.75	84.85	84.90	84.80	84.85	84.70	8 12
3	84.70	84.70	84.75	84.80	84.70	84.75	84.75	85.00	85.00	85.20	9 12
4	85.15	85.05	85.05	85.10	85.10	85.00	85.05	85.05	85.00	85.05	10 12
5	85.10	85.10	85.05	85.10	85.05	85.00	85.00	85.05	85.10	85.15	11 12
6	85.15	85.10	85.20	85.25	85.25	85.25	85.25	85.25	85.30	84.45	12 12
7	85.45	85.45	85.45	85.45	85.50	85.35	85.30	85.45	85.50	85.45	1 12 A. M.
8	85.40	85.45	85.40	85.45	85.45	85.45	85.50	85.50	85.60	85.55	2 12
9	85.85	85.85	85.80	85.90	85.90	86.00	86.00	86.00	86.00	86.00	3 12
10	86.00	86.00	86.00	86.00	86.20	86.20	86.30	86.25	86.50	86.40	4 12
11	86.65	86.65	86.55	86.70	86.70	86.65	86.75	86.80	87.00	87.00	5 12
12	87.20	87.25	87.35	87.45	87.45	87.65	87.80	87.95	87.95	88.05	6 12
1 P. M.	88.05	88.65	88.90	88.90	88.80	89.00	89.10	89.10	89.20	89.20	7 12
2	89.30	89.20	89.70	89.90	90.00	89.90	89.70	89.10	88.90	88.70	8 12
3	88.40	88.20	88.30	88.20	88.20	87.60	87.20	87.00	86.80	86.70	9 12
4	86.50	86.30	86.20	86.00	85.80	85.60	85.30	85.20	85.30	85.10	10 12
5	84.90	84.70	84.40	84.75	84.50	84.25	84.15	84.10	83.95	83.75	11 12
6	83.55	83.80	83.60	83.55	83.40	83.25	83.20	83.15	83.10	83.10	12 12
7	82.90	82.80	82.65	82.75	82.65	82.60	82.50	82.40	82.35	82.40	1 12 P. M.
8	82.45	82.45	82.45	82.50	82.55	82.50	82.25	82.65	82.70	82.75	2 12
9	82.85	82.90	82.90	82.95	83.10	83.10	83.25	82.95	83.40	83.55	3 12
10	83.60										4 12

Instrument used declinometer 20, C. S. No. 2; magnet C. 9 suspended. Value of 1 division of scale equal 2'.36. Increasing telescopic scale readings denote an easterly movement of the north end of the magnet. The observations are made half a minute earlier than stated above.

J. T. Hoover, observer from 12 6 A. M. to 7 12 A. M. (The other observers are not known.)

OCTOBER 20 and 21, 1852.

Göttingen mean time.	0 m.	6 ms.	12 ms.	18 ms.	24 ms.	30 ms.	36 ms.	42 ms.	48 ms.	54 ms.	Washington mean time.
10 P. M.	81.30	81.65	81.70	81.60	82.10	82.00	82.10	81.65	81.00	80.25	4 12 P. M.
11	80.75	84.50	84.57	84.75	84.30	84.50	85.10	84.60	83.60	82.90	5 12
12	82.90	82.25	82.65	82.65	81.85	82.50	81.50	82.50	82.25	81.60	6 12
1 A. M.	80.80	80.30	79.90	79.75	79.75	79.67	79.70	79.85	80.50	80.50	7 12
2	80.92	81.10	81.75	82.70	83.55	84.90	85.55	84.75	84.85	85.40	8 12
3	85.90	85.85	85.85	85.60	85.85	85.75	85.45	85.90	84.80	84.75	9 12
4	84.05	83.25	83.05	83.15	82.55	81.80	81.00	81.20	81.55	81.90	10 12
5	81.90	81.90	81.80	81.80	82.25	82.00	81.65	81.65	82.00	82.00	11 12
6	81.75	81.50	81.75	81.25	80.75	80.75	80.00	80.00	78.50	78.00	12 12
7	78.00	78.00	77.75	77.75	77.75	77.75	78.50	79.00	79.25	80.25	1 12 A. M.
8	81.35	82.00	82.75	83.65	84.00	83.75	83.00	83.00	83.10	83.00	2 12
9	83.00	82.50	82.50	82.00	81.00	80.50	79.75	79.55	80.45	80.00	3 12
10	80.20	79.95	80.00	79.75	80.00	80.02	80.50	80.50	80.00	80.00	4 12
11	79.85	79.35	78.45	78.45	79.00	79.00	79.07	77.50	77.50*	.....	5 12
12	.....	81.00	79.00	79.00	80.50	80.00	80.75	80.80	80.75	80.60	6 12
1 P. M.	81.00	81.00	83.75	85.10	84.05	85.72	85.50	85.50	85.05	84.75	7 12
2	84.75	84.25	84.10	85.40	85.10	85.95	85.90	85.50	85.37	84.75	8 12
3	85.00	85.37	84.05	84.00	84.00	82.60	82.67	83.00	82.77	83.05	9 12
4	82.75	82.77	82.50	82.20	82.32	82.15	82.20	82.10	82.30	82.10	10 12
5	82.30	82.20	82.00	81.60	81.60	81.90	81.95	78.05	77.90	81.50	11 12
6	81.40	80.90	80.90	81.40	81.30	81.45	81.25	81.50	81.50	81.75	12 12
7	81.75	81.75	81.50	81.75	82.00	82.50	82.10	82.35	82.25	82.50	1 12 P. M.
8	81.75	81.75	82.25	82.25	82.45	82.35	82.50	82.55	82.50	83.00	2 12
9	83.00	83.00	82.45	83.05	83.50	83.30	82.95	82.50	82.70	82.90	3 12
10	82.70										4 12

* Magnet vibrating very rapidly. ..... indicates that no observation was taken.

Magnet C. 15 suspended. 1 division of scale = 2'.8.

G. Rumpf, observer from . . . . 8 0 P. M. to 11 42 P. M. | J. T. Hoover, observer from . . . 11 48 P. M. to 4 0 A. M.

The other observers are not known.

NOVEMBER 26 and 27, 1852.

Göttingen mean time.	0 m.	6 ms.	12 ms.	18 ms.	24 ms.	30 ms.	36 ms.	42 ms.	48 ms.	54 ms.	Washington mean time.
10 P. M.	78.90	79.25	79.55	79.85	79.45	.....	77.85*	78.85	79.25	79.85	4 12 P. M.
11	79.75	80.25	80.00	79.45	79.12	79.40	79.75	80.05	80.80	81.35	5 12
12	82.20	82.23	81.93	81.35	81.15	81.00	80.90	80.90	80.90	80.55	6 12
1 A. M.	80.55	80.35	80.25	80.00	80.00	79.90	80.10	80.00	79.90	80.75	7 12
2	80.70	81.00	81.10	81.40	81.55	81.40	81.20	81.95	82.50	82.87	8 12
3	82.70	82.47	83.00	83.40	83.10	81.90	81.05	81.00	81.42	82.52	9 12
4	83.05	81.20	79.40	78.10	77.90	77.85	78.30	79.70	80.70	81.70	10 12
5	82.60	83.00	83.00	83.00	82.60	82.00	82.00	82.55	82.55	82.40	11 12
6	82.00	81.55	81.15	81.20	81.00	81.00	81.45	81.50	81.85	81.90	12 12
7	81.90	81.95	82.05	82.05	82.00	81.90	81.00	80.85	80.00	80.00	1 12 A. M.
8	80.50	80.95	80.45	80.70	80.65	80.50	80.80	80.80	80.00	80.00	2 12
9	80.00	80.60	80.95	81.00	81.00	81.90	81.95	81.00	81.15	81.20	3 12
10	81.30	81.40	81.80	81.90	81.90	82.10	82.10	81.80	81.70	81.60	4 12
11	81.80	81.70	81.80	81.90	81.90	81.80	81.80	81.70	81.90	79.75†	5 12
12	82.42	82.60	83.15	83.30	83.25	83.00	82.67	82.20	82.30	82.10	6 12
1 P. M.	81.95	82.15	81.95	82.05	82.05	81.70	82.75	83.55	83.60	83.60	7 12
2	83.70	84.03	84.13	84.40	84.75	84.95	84.25	84.20	84.40	84.05	8 12
3	84.40	84.65	85.93	85.50	86.50	84.70	83.80	84.08	84.00	84.05	9 12
4	83.90	83.68	83.90	83.15	83.85	83.90	83.85	83.35	83.55	83.90	10 12
5	83.85	83.90	83.90	83.20	83.40	83.05	82.68	82.35	82.03	82.10	11 12
6	82.10	81.55	81.12	80.75	80.42	80.55	80.40	81.02	81.07	80.97	12 12

NOVEMBER 26 and 27, 1852—Continued.

Göttingen mean time.	0 m.	6 ms.	12 ms.	18 ms.	24 ms.	30 ms.	36 ms.	42 ms.	48 ms.	54 ms.	Washington mean time.
7 P. M.	81.25	81.42	81.70	81.72	82.25	82.35	82.10	82.20	82.27	83.00	1 12 P. M.
8	83.25	82.80	82.90	83.02	83.27	83.70	84.05	83.90	83.55	83.60	2 12
9	83.40	83.30	83.10	83.07	83.32	83.30	83.60	83.50	83.10	83.20	3 12
10	83.00										4 12

* This reading is uncertain; persons walking in the room above.

† This reading is uncertain. The above observations are not quite satisfactory, on account of frequent disturbances by persons about the place.

..... indicates that no observation was taken. Instrument and magnet the same as before.

G. Rumpf, observer from . . . . 4 12 P. M. to 8 0 P. M.
C. A. Schott, observer from . . . 8 6 to 11 42
J. T. Hoover, observer from . . . 11 48 P. M. to 3 48 A. M.
G. Rumpf, observer from . . . . 8 18 A. M. to 12 18 P. M.

DECEMBER 22 and 23, 1852.

Göttingen mean time.	0 m.	6 ms.	12 ms.	18 ms.	24 ms.	30 ms.	36 ms.	42 ms.	48 ms.	54 ms.	Washington mean time.
10 P. M.	.....	82.85	82.50	83.00	83.50	83.80	83.00	83.10	83.00	82.70	4 12 P. M.
11	82.50	82.15	83.70	83.90	84.10	84.40	85.35	85.50	85.50	85.45	5 12
12	85.20	85.20	84.30	84.50	84.50	84.80	84.50	84.60	84.75	84.10	6 12
1 A. M.	84.00	83.90	84.10	83.75	83.90	83.80	83.70	83.70	83.80	83.87	7 12
2	84.20	84.45	84.17	83.85	84.25	84.15	84.00	84.00	84.10	84.10	8 12
3	84.10	84.10	84.32	84.50	84.50	84.40	84.40	84.50	84.50	84.50	9 12
4	84.50	84.40	84.20	84.45	84.35	84.60	84.55	84.40	84.55	84.65	10 12
5	84.75	84.65	84.50	84.50	84.50	84.65	84.70	84.70	84.80	84.70	11 12
6	84.70	84.72	84.65	84.65	84.80	85.05	85.00	84.95	84.80	84.00	12 12
7	84.30	85.00	85.30	85.50	85.50	85.70	85.00	84.95	85.00	85.00	1 12 A. M.
8	85.00	84.85	84.80	84.80	85.00	85.00	85.00	85.00	85.00	85.00	2 12
9	85.00	85.00	85.00	85.00	85.00	84.80	84.80	84.55	84.55	84.65	3 12
10	84.80	84.80	84.85	84.95	85.00	85.00	84.95	84.80	84.80	84.65	4 12
11	84.75	84.90	84.90	84.80	84.75	84.45	84.55	84.70	84.75	84.50	5 12
12	84.35	82.67*	82.60*	83.55	88.80†	88.00	88.95	89.05	89.10	89.00	6 12
1 P. M.	89.15	89.45	89.15	88.60	89.10	89.37	87.12	86.70	86.65	.....	7 12
2	86.50	86.35	86.40	84.60	84.75	83.85	84.35	83.25	82.90	83.85	8 12
3	84.15	83.60	84.20	83.60	82.60	83.75	85.40	86.35	86.50	86.60	9 12
4	86.85	87.00	86.65	86.95	86.60	86.65	86.35	86.10	85.90	85.75	10 12
5	85.00	85.00	85.00	84.75	84.70	84.35	83.80	83.50	84.65	84.75	11 12
6	85.15	85.00	85.00	84.65	85.15	85.10	85.20	85.15	85.10	84.92	12 12
7	85.00	85.10	85.15	85.10	85.00	85.00	84.90	84.70	84.70	84.95	1 12 P. M.
8	85.00	85.22	85.25	85.37	85.35	85.60	85.60	85.45	85.05	85.00	2 12
9	85.17	84.90	.....	.....	.....	.....	.....	.....	.....	.....	3 12
10	.....										4 12

* Disturbances probably caused by some person in the room above.

† This and some of the following observations are uncertain, as persons were heard moving above. These observations commence 25s. earlier than stated above. Instrument as before.

..... indicates that no observation was taken.

J. T. Hoover, observer from . . . 11 48 P. M. to 4 30 A. M.
G. Rumpf, observer from . . . . 4 36 A. M. to 8 00 A. M.
(The other observers are not known.)

MAGNETIC TERM-DAY OBSERVATIONS

AT THE

MAGNETIC OBSERVATORY ON FOUR-AND-A-HALF STREET WEST, NEAR AND NORTH OF PENNSYLVANIA AVENUE, WASHINGTON, D. C.

Latitude 38° 53′ 31″. Longitude 77° 00′ 44″ (5*h*. 8*m*. 3*s*.) W. of Greenwich.

DIFFERENTIAL OBSERVATIONS OF DECLINATION IN 1853.

The instrument used was declinometer 20, United States Coast Survey No. 2; magnet C. 15 suspended. Increasing telescopic scale readings denote a westerly movement of the north end of the magnet.

MARCH 23 and 24, 1853.

Göttingen mean time.	0 m.	6 ms.	12 ms.	18 ms.	24 ms.	30 ms.	36 ms.	42 ms.	48 ms.	54 ms.	Washington mean time.
10 P. M.	77.15	77.00	77.00	77.20	77.10	77.20	77.10	77.10	77.10	77.10	4 12 P. M.
11	77.10	.....	77.40	77.10	77.30	77.20	77.25	77.00	77.30	77.40	5 12
12	77.20	77.15	77.00	77.40	77.40	77.30	77.30	77.80	77.50	77.40	6 12
1 A. M.	77.90	77.80	77.90	78.00	78.00	78.00	78.40	78.00	78.80	.....	7 12
2	79.00	79.00	*.....	.....	.....	78.75	78.75	78.75	78.85	78.70	8 12
3	78.80	78.70	78.15	78.50	78.50	78.55	78.50	78.40	78.20	78.10	9 12
4	78.10	78.10	78.15	78.15	78.25	78.20	78.35	78.20	78.10	78.10	10 12
5	78.10	78.10	78.15	78.25	78.45	78.40	78.45	78.60	78.65	78.60	11 12
6	78.60	78.50	78.70	78.45	78.50	78.85	79.10	78.80	78.35	77.95	12 12
7	78.00	78.50	78.50	78.80	79.00	79.00	79.00	79.00	79.00	79.00	1 12 A. M.
8	79.00	79.00	79.20	79.20	79.20	79.20	79.20	79.20	79.20	79.80	2 12
9	79.80	79.80	79.80	79.50	79.35	79.50	79.50	79.30	79.45	79.35	3 12
10	79.60	79.50	79.50	79.10	79.00	79.00	79.15	79.25	79.40	79.45	4 12
11	79.10	79.20	79.30	79.45	79.50	79.30	79.00	79.10	79.30	79.35	5 12
12	79.20	79.20	78.80	78.60	78.45	78.20	78.15	78.00	78.30	79.00	6 12
1 P. M.	79.00	79.30	79.40	79.40	79.80	80.00	80.00	80.00	80.35	80.25	7 12
2	80.45	80.55	80.40	80.40	80.50	80.40	80.40	80.65	80.80	80.80	8 12
3	80.47	†.....	.....	.....	79.50	.....	.....	.....	79.00	78.25	9 15
4	78.10	77.90	77.80	77.50	77.30	77.30	77.20	77.05	76.95	76.85	10 12
5	76.55	76.02	75.85	75.75	75.55	75.50	75.55	75.55	75.35	75.25	11 12
6	75.20	75.05	75.00	74.90	74.90	74.75	74.35	74.50	74.65	74.50	12 12
7	74.50	74.35	74.20	74.20	74.20	74.35	74.20	74.20	74.20	74.20	1 12 P. M.
8	74.80	74.90	74.90	75.00	74.90	75.00	75.20	75.10	75.10	75.25	2 12
9	75.50	75.35	75.60	75.65	75.60	75.65	75.90	75.80	75.90	75.90	3 12
10	75.90										4 12

* Magnet in vibration. † Magnet in a rapid up and down motion.

..... indicates that no observation was taken. One division of scale = 2′.8.

G. Rumpf, observer from . . . . 8 12 P. M. to 12 12 A. M.
J. T. Hoover, observer from . . . 12 18 A. M. to 3 48

J. T. Hoover, observer from . . . 12 36 P. M. to 4 12 A. M.

APRIL 20 and 21, 1853.

Göttingen mean time.	0 m.	6 ms.	12 ms.	18 ms.	24 ms.	30 ms.	36 ms.	42 ms.	48 ms.	54 ms.	Washington mean time.
10 P. M.	83.75	83.60	83.45	83.35	83.00	83.15	83.10	83.20	83.30	83.20	4 12 P. M.
11	83.20	82.90	82.50	82.50	82.60	82.65	82.90	83.10	83.30	83 35	5 12
12	83.00	83.20	83.50	83.60	84.00	84.50	84.60	85.00	84.90	85.00	6 12
1 A. M.	85.40	86.00	87.00	88.00	89.00	89.50	89.50	91.57	90.25	87.45	7 12
2	88.05	88.45	88.65	88.80*	.....	.....	.....	85.50	86.25	86.55	8 12
3	86.35	86.35	86.65	86.55	86.75	86.25	86.65	86.65	86.45	86.35	9 12
4	86.35	86.35	86.60	86.65	86.65	86.75	86.75	86.85	86.85	86.85	10 12
5	86.85	86.75	86.75	86.75	86.75	86.75	86.75	87.15*	86.95	86.85	11 12
6	87.00	87.00	87.10	87.20	87.20	87.20	87.20	87.20	87.20	87.20	12 12
7	87.20	87.20	87.20	87.00	87.00	87.00	87.00	87.10	87.10	87.20	1 12 A. M.
8	87.35	87.35	87.35	87.35	87.35	87.50	87.60	87.60	87.70	87.60	2 12
9	87.60	87.70	87.80	87.80	88.00	88.00	88.00	88.00	88.00	87.85	3 12
10	87.85	88.00	87.90	88.00	88.00	88.00	88.00	88.00	89.35	89.25	4 12
11	88.50	88.50	88.50	88.25	88.30	88.20	88.65	88.90	88.90	89.00	5 12
12	88.90	88.90	88.90	88.90	89.00	88.50	88.50	89.00	89.00	88.70	6 12
1 P. M.	88.35	88.55	88.65	88.35	88.10	88.00	88.05	88.10	88.00	88.10	7 12
2	87.25	87.40	87.60	87.10	87.35	87.10	86.50	86.90	87.00	86.75	8 12
3	87.00	87.00	86.90	86.75	86.55	86.50	86.00	86.00	86.00	85.90	9 12
4	85.50	85.50	85.40	85.20	85.00	85.20	85.00	85.25	85.20	85.10	10 12
5	85.25	85.00	85.00	84.90	85.00	85.00	85.00	85.00	85.10	85.10	11 12
6	85.00	85.00	84.75*	85.00	84.45	84.50	84.40	84.50	84.40	84.30	12 12
7	84.30	84.30	84.30	84.40	84.47	84.40	84.40	84.40	84.50	84.50	1 12 P. M.
8	84.50	84.40	84.40	84.50	84.50	84.40	84.50	84.50	84.50	84.40	2 12
9	84.50	84.50	84.50	84.60	84.70	84.80	84.85	84.85	84.95	84.90	3 12
10	84.70										4 12

* Fastened the mirror.

G. Rumpf, observer from . . . . 8 0 P. M. to 12 12 A. M. | J. T. Hoover, observer from . . . 12 18 A. M. to 3 54 A. M.

MAGNETIC TERM-DAY OBSERVATIONS

AT THE

MAGNETIC OBSERVATORY IN THE SMITHSONIAN GROUNDS, WASHINGTON, D. C.

Latitude, 38° 53′ 14″. Longitude, 77° 1′ 10″ (5*h*. 8*m*. 5*s*.) west of Greenwich.

DIFFERENTIAL OBSERVATIONS OF DECLINATION IN 1854 AND PART OF 1855.

The observations were obtained by means of Mr. Charles Brooke's automatic photographic registration of magnetometers, and as described by Captain J. H. Lefroy, R. A., director of the magnetical observatory at Toronto, Canada.

The traces were supplied with time and declination scales, and the readings were tabulated. The correction for torsion amounts in maximo to 0.1, and has hence been neglected. The uncertainty in reading off amounts to twice that amount. One division equals one minute of arc. The time scale may be considered correct to the nearest half minute.

Increasing scale readings denote a westerly movement of the north end of the magnetic bar.

MAY 26 and 27, 1854.

Göttingen mean time.	0 m.	5 ms.	10 ms.	15 ms.	20 ms.	25 ms.	30 ms.	35 ms.	40 ms.	45 ms.	50 ms.	55 ms.	Washington mean time.
10 P. M.	188.7	188.6	188.5	188.3	188.0	187.9	187.6	187.5	187.2	186.6	186.5	186.0	4 12 P. M.
11	186.0	185.7	185.0	184.6	184.5	184.7	185.0	188.5	185.6	185.9	186.0	186.0	5 12
12	185.7	185.5	185.4	185.0	184.5	184.5	184.5	184.6	184.7	185.1	185.5	185.6	6 12
1 A. M.	185.6	185.8	186.0	185.7	185.4	184.6	184.8	185.4	185.8	185.9	185.8	185.6	7 12
2	185.3	185.0	185.0	185.1	184.9	184.4	183.0	182.2	181.8	181.5	181.0	180.0	8 12
3	182.0	181.5	181.3	181.6	181.8	181.6	181.5	181.5	181.6	182.0	181.3	181.0	9 12
4	183.5	184.0	185.5	186.0	186.0	187.0	188.0	188.1	187.5	186.6	186.4	185.6	10 12
5	184.6	183.5	183.0	183.3	183.7	183.6	183.0	182.5	182.0	182.4	182.4	182.9	11 12
6	183.7	184.0	184.0	184.8	185.0	185.1	185.0	184.9	185.1	185.6	185.9	186.7	12 12
7	186.4	186.1	187.0	188.0	189.2	189.4	189.5	189.2	188.4	187.8	187.6	188.0	1 12 A. M.
8	188.7	189.9	190.0	189.6	189.0	188.4	188.3	187.6	187.3	186.7	186.4	185.5	2 12
9	185.6	185.8	186.0	186.0	185.6	185.0	185.0	185.0	185.0	184.5	184.3	184.4	3 12
10	186.0	187.0	188.0	189.0	189.0	188.1	187.5	186.9	186.0	185.0	184.1	183.5	4 12
11	183.0	182.5	182.1	181.7	181.2	180.7	180.7	180.7	180.7	180.5	180.1	180.4	5 12
12	180.7	180.7	180.7	180.6	180.4	180.0	180.5	180.6	180.8	181.0	181.0	180.6	6 12
1 P. M.	180.0	181.0	180.9	180.5	180.0	180.0	180.8	180.5	179.8	179.8	180.2	180.5	7 12
2	180.0	179.6	180.0	180.7	180.5	179.7	180.4	180.0	180.3	181.0	181.9	182.6	8 12
3	182.5	182.5	182.5	183.0	183.0	183.0	183.0	183.0	183.0	183.5	183.3	183.2	9 12
4	183.7	184.5	185.0	185.4	185.7	186.2	186.6	186.5	186.0	186.0	186.6	186.4	10 12
5	186.6	186.7	186.8	187.0	187.5	188.0	188.3	188.3	188.3	188.3	188.3	188.4	11 12
6	188.3	188.0	188.3	188.4	188.3	188.4	188.6	188.6	188.8	189.0	188.9	188.9	12 12
7	189.0	189.1	189.1	189.5	189.5	189.4	189.4	189.0	189.0	189.1	189.4	189.6	1 12 P. M.
8	189.6	189.6	189 6	190.1	190.5	190.4	190.3	190.3	190.4	190.6	190.6	190.5	2 12
9	190.2	189.8	189.5	189.3	189.3	189.4	189.5	189.6	189.7	189.6	189.5	189.3	3 12
10	189.0												4 12

Charles A. Schott, observer.

There is some doubt in the reading after 8 P. M. (Göttingen mean time) from the interference of the traces, the paper having remained on the cylinder 48 hours.

JANUARY 24 and 25, 1855.

Göttingen mean time.	0 m.	5 ms.	10 ms.	15 ms.	20 ms.	25 ms.	30 ms.	35 ms.	40 ms.	45 ms.	50 ms.	55 ms.	Washington mean time.
10 P. M.	147.0	146.9	146.7	146.7	146.6	146.5	146.5	146.4	146.4	146.4	146.3	146.0	4 12 P. M.
11	146.0	146.0	146.1	146.1	146.1	146.2	146.2	146.0	146.0	146.0	145.8	145.8	5 12
12	145.5	145.5	145.5	145.6	145.7	145.7	145.8	145.8	145.6	145.4	145.4	145.4	6 12
1 A. M.	145.4	145.4	145.5	145.5	145.3	145.0	145.0	145.0	145.0	145.3	145.4	145.5	7 12
2	145.4	145.6	145.7	145.6	144.9	143.0	138.5	135.7	135.0	134.5	133.0	130.4	8 12
3	128.0	126.1	126.0	126.5	126.6	129.1	129.4	130.5	134.5	135.7	137.8	137.8	9 12
4	137.5	138.0	139.0	140.0	141.2	142.2	143.0	143.0	142.0	141.5	141.5	141.4	10 12
5	141.3	142.6	143.3	143.2	142.0	141.5	139.2	138.8	138.6	138.8	139.4	140.1	11 12
6	140.8	141.2	141.5	141.6	142.0	142.3	142.8	143.0	142.9	143.0	143.2	144.0	12 12
7	145.0	145.6	145.7	146.3	146.0	145.9	145.5	145.1	145.1	145.5	145.0	144.6	1 12 A. M.
8	144.0	143.5	143.8	144.4	145.4	145.5	144.6	144.4	144.5	145.8	147.0	148.3	2 12
9	147.5	148.1	148.0	147.5	146.6	146.4	146.0	146.0	146.0	146.0	146.1	146.2	3 12
10	147.4	149.0	149.1	149.4	152.1	152.5	152.9	153.4	153.0	152.3	152.0	151.0	4 12
11	150.0	149.6	148.7	147.7	147.0	146.5	146.3	146.6	147.0	146.9	146.5	146.0	5 12
12	145.6	145.6	146.7	146.5	145.9	145.5	145.3	145.3	145.0	145.2	145.2	145.2	6 12
1 P. M.	145.0	149.0	148.4	148.2	149.1	149.1	148.7	148.4	.....	.....	.....	.....	7 12
2	.....	141.4	141.2	141.0	140.8	140.6	140.4	140.3	140.5	140.7	140.9	141.0	8 12
3	141.5	141.5	141.4	141.4	141.5	141.7	141.0	.....	.....	.....	.....	.....	9 12
4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10 12
5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	11 12
6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	12 12 P. M.
7	145.0	145.0	145.3	145.4	145.5	145.5	145.6	145.5	145.6	145.7	146.0	146.0	1 12
8	145.8	146.0	146.0	146.0	146.0	146.0	146.0	145.9	146.0	146.0	146.2	146.4	2 12
9	146.5	146.5	146.4	146.1	146.0	146.0	146.0	146.0	145.8	145.6	145.5	145.4	3 12
10	145.0												4 12

John T. Hoover, observer.

A new scale was attached to the reading telescope in October last. The value of one division equals one minute, as before.

..... indicates a failure of the trace.

FEBRUARY 23 and 24, 1855.

Göttingen mean time.	0 m.	5 ms.	10 ms.	15 ms.	20 ms.	25 ms.	30 ms.	35 ms.	40 ms.	45 ms.	50 ms.	55 ms.	Washington mean time.
10 P. M.	153.4	153.3	153.0	152.5	151.0	150.5	150.0	149.5	149.3	149.1	149.2	149.4	4 12 P. M.
11	149.4	149.4	149.4	149.6	149.8	150.0	150.0	150.0	149.9	150.0	150.4	150.6	5 12
12	150.6	150.5	150.5	150.5	150.4	150.3	150.0	149.6	149.1	149.0	149.0	149.0	6 12
1 A. M.	149.0	148.3	147.0	145.7	145.4	145.5	146.4	147.4	148.1	148.8	149.1	149.5	7 12
2	149.5	149.5	149.5	149.5	149.4	149.5	149.6	149.8	149.8	149.7	149.6	149.4	8 12
3	149.4	149.2	149.3	149.5	149.6	149.7	149.8	149.9	150.0	149.8	149.6	149.4	9 12
4	149.5	149.5	149.4	149.3	149.3	149.3	149.4	149.4	149.3	149.3	149.4	149.5	10 12
5	149.4	149.6	149.7	149.9	150.0	149.8	149.6	149.6	149.7	149.6	149.5	149.5	11 12
6	149.0	149.0	148.9	148.7	148.5	148.4	149.2	149.0	149.1	149.2	149.0	149.0	12 12
7	149.1	149.2	149.4	149.4	149.5	149.5	149.4	149.4	149.1	149.0	149.0	149.3	1 12 A. M.
8	149.5	149.6	150.0	150.1	150.1	150.0	150.0	149.8	149.6	149.6	149.6	150.0	2 12
9	150.0	150.0	150.1	150.0	150.0	150.0	150.0	150.0	149.9	149.9	149.9	150.0	3 12
10	150.0	150.2	150.5	150.6	150.6	150.6	150.6	150.6	150.8	151.0	151.1	151.2	4 12
11	151.3	151.6	151.8	151.6	151.4	151.3	151.0	151.0	150.8	150.6	150.5	150.6	5 12
12	151.0	151.2	151.0	151.0	151.0	151.1	151.2	151.2	151.0	151.0	151.0	151.0	6 12
1 P. M.	151.0	151.0	151.0	150.8	150.7	150.7	150.6	150.5	150.4	150.3	150.2	150.2	7 12
2	150.4	150.6	150.5	150.4	150.3	150.2	150.1	150.2	150.2	150.3	150.4	150.5	8 12
3	150.0	150.0	150.0	150.0	150.2	150.3	.....	150.1	150.0	150.0	150.0	150.1	9 12
4	150.1	150.1	150.1	150.2	150.3	150.5	150.6	150.5	150.4	150.0	150.0	149.9	10 12
5	150.1	150.3	150.3	150.3	150.3	150.3	150.2	150.0	150.0	150.0	150.3	150.4	11 12
6	150.3	150.3	150.3	150.4	150.1	150.0	150.0	150.3	150.3	150.4	150.5	150.6	12 12
7	150.5	150.4	150.5	150.6	150.6	150.5	150.6	150.6	150.6	150.6	150.6	150.6	1 12 P. M.
8	150.5	150.6	150.6	150.7	150.7	150.8	150.8	150.8	150.8	150.9	151.0	151.0	2 12
9	150.9	150.7	150.6	150.6	150.8	151.0	151.0	151.0	151.4	151.5	151.5	151.6	3 12
10	151.9												4 12

John T. Hoover, observer.

There is some doubt in the reading after 7 P. M. (Göttingen mean time) from interference of traces. ..... indicates a failure of the trace.

MARCH 21 and 22, 1855.

Göttingen mean time.	0 m.	5 ms.	10 ms.	15 ms.	20 ms.	25 ms.	30 ms.	35 ms.	40 ms.	45 ms.	50 ms.	55 ms.	Washington mean time.
10 P. M.	153.6	153.5	153.4	153.3	153.2	153.2	153.2	153.2	153.2	153.1	153.0	153.0	4 12 P. M.
11	153.0	152.9	152.8	152.8	152.6	152.4	152.1	152.0	152.0	152.0	152.0	152.0	5 12
12	152.0	152.0	152.0	151.5	150.9	150.1	149.2	148.0	145.5	145.0	144.6	144.8	6 12
1 A. M.	145.7	145.9	146.7	147.0	148.0	148.9	149.0	149.5	149.6	149.6	149.6	149.5	7 12
2	149.4	149.3	149.4	149.5	149.6	149.8	150.0	150.0	150.0	150.0	150.0	150.0	8 12
3	150.0	150.0	149.9	149.6	149.5	149.4	149.4	149.3	149.4	149.5	149.5	149.7	9 12
4	150.0	150.0	150.0	149.8	149.6	149.6	149.7	149.9	150.0	150.0	150.0	150.0	10 12
5	149.9	150.4	150.6	150.8	150.8	150.8	150.9	150.9	150.7	150.7	150.8	150.9	11 12
6	150.8	150.7	150.6	150.5	150.5	150.7	151.1	151.1	151.2	151.2	151.0	150.7	12 12
7	150.4	150.4	150.5	150.5	150.5	150.5	150.4	150.4	150.5	150.5	150.5	150.4	1 12 A. M.
8	150.0	150.0	150.0	150.0	150.1	150.1	150.1	150.0	150.0	150.0	150.0	150.0	2 12
9	150.1	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	3 12
10	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	4 12
11	150.0	150.0	150.0	150.9	149.6	149.4	149.3	149.2	149.0	148.9	148.9	149.0	5 12
12	149.0	149.0	148.8	148.7	148.5	148.2	148.0	148.0	148.0	148.0	148.0	148.0	6 12
1 P. M.	148.0	148.0	148.0	147.7	147.5	147.5	147.5	147.5	147.5	147.5	147.6	147.6	7 12
2	147.6	147.6	147.6	147.6	147.5	147.5	147.5	147.4	147.4	147.4	147.4	147.5	8 12
3	147.9	148.0	148.1	148.1	148.1	148.1	148.4	148.5	148.6	148.5	148.7	149.0	9 12
4	149.0	149.1	149.2	149.3	149.4	149.4	149.6	150.0	150.0	150.1	150.2	.....	10 12
5	150.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	11 12
6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	12 12
7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1 12 P. M.
8	.....	.....	.....	.....	.....	154.5	154.6	154.5	154.4	154.1	154.0	154.0	2 12
9	154.3	154.4	154.4	154.4	154.4	154.3	154.3	154.2	154.0	153.9	153.8	153.7	3 12
10	153.6												4 12

John T. Hoover, observer.

..... indicates a failure of the trace.

APRIL 18 and 19, 1855.

Göttingen mean time.	0 m.	5 ms.	10 ms.	15 ms.	20 ms.	25 ms.	30 ms.	35 ms.	40 ms.	45 ms.	50 ms.	55 ms.	Washington mean time.
10 P. M.	153.0	153.0	153.0	152.9	152.7	152.5	152.4	152.2	152.0	151.9	151.8	151.6	4 12 P. M.
11	151.4	151.4	151.3	151.3	151.2	151.1	151.1	151.1	151.0	151.9	151.0	151.0	5 12
12	151.0	151.0	151.0	151.0	151.0	151.0	151.0	151.0	150.8	151.0	151.0	151.0	6 12
1 A. M.	150.9	150.9	151.0	151.0	151.1	150.9	150.6	150.3	150.0	149.7	149.5	149.3	7 12
2	149.3	149.5	149.5	149.6	150.0	150.0	150.0	150.0	150.0	149.7	149.0	148.0	8 12
3	147.4	146.6	145.7	144.8	145.0	145.4	146.0	146.6	147.3	148.0	148.5	149.0	9 12
4	149.3	149.4	149.3	149.0	148.7	149.0	149.0	149.0	149.1	149.3	150.0	150.0	10 12
5	150.0	150.0	149.6	149.4	150.0	151.1	151.4	150.6	150.6	151.5	152.4	153.2	11 12
6	153.6	153.7	153.3	152.5	152.	151.8	150.9	150.0	150.0	150.0	150.0	149.9	12 12
7	149.5	149.6	149.7	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	1 12 A. M.
8	150.0	150.0	150.0	150.0	150.5	151.4	151.5	151.6	151.5	151.0	151.0	151.1	2 12
9	151.2	151.2	151.8	152.9	154.0	154.4	154.6	154.6	154.5	154.4	153.8	153.3	3 12
10	152.5	152.3	152.0	151.8	151.7	151.6	151.6	151.4	151.0	150.6	150.4	149.7	4 12
11	149.4	149.3	149.0	148.2	148.1	148.0	148.0	147.6	147.3	147.0	147.0	146.8	5 12
12	147.0	147.1	147.4	147.5	147.4	147.3	147.1	147.0	146.7	146.5	146.5	146.5	6 12
1 P. M.	146.4	146.3	146.0	146.0	146.4	146.5	146.4	146.3	146.4	146.4	146.3	146.3	7 12
2	146.6	146.7	147.0	147.0	147.1	147.1	147.0	147.0	147.0	147.4	147.4	147.2	8 12
3	148.0	148.2	148.0	148.4	148.6	148.6	148.5	148.6	149.3	149.6	149.9	150.5	9 12
4	151.1	151.9	152.0	152.1	152.3	152.5	.....	.....	153.3	153.2	153.0	153.1	10 12
5	153.4	153.6	153.9	154.0	154.1	154.2	154.2	154.4	154.5	154.5	154.5	154.7	11 12
6	154.8	154.8	155.0	155.1	155.3	155.3	155.4	155.4	155.4	155.3	155.5	155.9	12 12
7	156.0	156.1	156.2	156.2	156.0	156.0	156.0	156.0	156.0	156.0	156.0	156.0	1 12 P. M.
8	156.0	156.0	156.0	156.0	156.0	156.0	155.9	155.9	156.0	156.0	155.9	155.8	2 12
9	155.6	155.5	155.4	155.3	155.3	155.3	155.4	155 4	155.1	154.5	154.3	154.1	3 12
10	154.0												4 12

John T. Hoover, observer.

..... indicates a failure of the trace.

MAY 25 and 26, 1855.

Göttingen mean time.	0 m.	5 ms.	10 ms.	15 ms.	20 ms.	25 ms.	30 ms.	35 ms.	40 ms.	45 ms.	50 ms.	55 ms.	Washington mean time.
10 P. M.	153.8	153.8	153.7	153.6	153.5	153.3	153.0	153.0	153.0	153.0	153.0	153.0	4 12 P. M.
11	153.0	153.0	153.0	152.9	152.9	152.9	152.8	152.7	152.7	152.7	152.7	153.0	5 12
12	153.0	153.2	153.2	153.2	153.3	153.3	153.3	153.2	153.2	153.2	153.2	153.3	6 12
1 A. M.	153.3	153.5	153.5	153.5	153.5	153.5	153.5	153.4	153.2	153.2	153.4	153.4	7 12
2	153.5	153.5	153.5	153.5	153.5	153.6	153.5	153.3	153.3	153.1	153.1	153.2	8 12
3	153.0	153.2	153.2	153.2	153.2	153.1	153.0	153.0	153.1	153.1	153.1	153.2	9 12
4	153.0	153.0	153.0	153.0	153.0	153.0	153.0	153.0	152.9	152.9	152.9	152.8	10 12
5	152.8	152.8	152.6	152.6	152.6	152.6	152.5	152.5	152.5	152.4	152.4	152.2	11 12
6	152.3	152.3	152.3	152.4	152.4	152.4	152.4	152.4	152.4	152.3	152.3	152.3	12 12
7	152.3	152.4	152.4	152.4	152.4	152.4	152.4	152.4	152.4	152.3	152.1	152.0	1 12 A. M.
8	151.5	151.2	151.0	151.0	151.0	150.9	151.0	151.0	151.0	151.0	151.0	151.2	2 12
9	151.3	151.2	151.0	150.9	150.9	150.9	151.0	151.0	151.0	151.0	150.8	150.8	3 12
10	151.0	151.0	150.9	150.9	150.9	150.9	151.0	151.0	151.2	151.3	151.4	151.4	4 12
11	151.4	151.3	151.2	151.0	150.9	150.7	150.5	150.4	150.3	150.3	150.3	150.4	5 12
12	150.6	150.6	150.7	150.9	151.0	151.0	151.0	151.0	151.1	151.3	151.5	152.0	6 12
1 P. M.	152.1	152.3	152.4	152.5	152.5	152.5	152.5	152.5	152.5	152.4	152.5	152.6	7 12
2	152.6	152.6	152.5	152.5	152.5	152.5	152.4	152.5	152.5	152.5	152.6	152.7	8 12
3	152.7	152.8	152.9	152.9	152.9	152.8	152.6	.....	154.3	154.5	154.5	154.0	9 12
4	153.3	153.6	155.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	10 12
5	.....	.....	155.6	156.0	155.4	155.8	155.0	156.0	157.0	158.0	159.0	.....	11 12
6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	12 12
7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1 12 P. M.
8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2 12
9	158.6	158.5	158.6	158.6	158.5	158.5	158.3	158.0	157.9	157.0	157.0	157.0	3 12
10	157.5												4 12

John T. Hoover, observer.

There is some doubt in the reading after 4 P. M. (Göttingen mean time) from the interference of the traces.

..... indicates a failure of the trace.

JUNE 20 and 21, 1855.

Göttingen mean time.	0 m.	5 ms.	10 ms.	15 ms.	20 ms.	25 ms.	30 ms.	35 ms.	40 ms.	45 ms.	50 ms.	55 ms.	Washington mean time.
10 P. M.	156.0	156.0	155.5	155.5	155.4	155.4	155.4	155.6	155.4	155.1	154.8	154.6	4 12 P. M.
11	154.5	154.2	154.1	154.1	154.0	154.0	153.9	153.9	153.9	153.8	153.7	153.5	5 12
12	153.2	153.0	153.0	153.0	152.6	152.5	152.5	152.6	152.7	152.9	153.0	153.1	6 12
1 A. M.	153.1	153.0	152.7	152.5	152.1	152.3	152.3	152.3	152.4	152.5	152.6	152.9	7 12
2	153.0	153.1	153.0	152.9	152.7	152.5	152.3	152.2	152.2	152.3	152.5	152.6	8 12
3	152.4	152.4	152.5	152.6	152.7	152.8	152.9	152.8	152.7	152.8	152.8	152.6	9 12
4	152.5	152.5	152.8	152.8	152.5	152.3	152.1	152.0	152.1	152.1	152.2	152.2	10 12
5	152.1	152.1	152.1	152.1	152.0	152.0	151.9	151.8	151.5	151.5	151.4	151.4	11 12
6	151.6	151.6	151.6	151.5	151.3	151.1	151.1	151.2	151.3	151.4	151.3	151.4	12 12
7	151.5	151.5	151.5	151.4	151.5	151.4	151.3	151.3	151.4	151.5	151.5	151.5	1 12 A. M.
8	151.5	151.5	151.6	151.6	151.6	151.6	151.7	151.7	151.8	151.8	151.8	151.8	2 12
9	151.8	151.7	151.6	151.5	151.4	151.3	151.2	151.3	151.2	151.3	151.4	151.4	3 12
10	151.3	151.2	151 2	151.2	151.2	151.0	151.0	151.0	151.1	151.1	151.1	151.1	4 12
11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5 12
12	.....	.....	.....	.....	.....	.....	....	.....	.....	.....	.....	.....	6 12
1 P. M.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	7 12
2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8 12
3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9 12
4	146.2	146.2	146.3	146.4	146.6	146.8	146.9	147.0	147.1	147.4	147.6	147.9	10 12
5	148.5	148.7	148.9	149.1	149.4	149.6	149.8	149.9	150.1	150.3	150.5	150.7	11 12
6	151.3	151.5	151.7	152.1	152.3	152.5	152.6	152.9	153.0	153.1	153.3	153.4	12 12
7	153.4	153.4	153.4	153.5	153.7	153.9	154.0	154.3	154.4	154.5	154.6	154.6	1 12 P. M.
8	154.7	154.7	154.7	154.8	154.8	154.8	154.8	154.8	154.5	154.4	154.4	154.3	2 12
9	154.3	154.4	154.4	154.5	154.5	154.5	154 4	154.2	153.8	153.7	153.6	153.5	3 12
10	153.2												4 12

John T. Hoover, observer.

..... indicates a failure of the trace.

MAGNETIC TERM-DAY OBSERVATIONS

AT THE

MAGNETIC OBSERVATORY IN THE SMITHSONIAN GROUNDS, WASHINGTON, D. C.

Latitude 38° 53′ 14″. Longitude 77° 1′ 10″ (5*h*. 8*m*. 5*s*.) west of Greenwich.

DIFFERENTIAL OBSERVATIONS OF DECLINATION IN 1855.

The reading telescope was refitted and supplied with a new scale. Increasing telescopic scale readings denote a westerly movement of the north end of the magnetic bar.

NOVEMBER 23 and 24, 1855.

Göttingen mean time.	0 m.	5 ms.	10 ms.	15 ms.	20 ms.	25 ms.	30 ms.	35 ms.	40 ms.	45 ms.	50 ms.	55 ms.	Washington mean time.
10 P. M.	59.30	59.50	59.50	59.50	59.50	59.40	59.20	59.50	59.40	59.50	59.60	59.60	4 12 P. M.
11	59.50	59.60	59.50	59.60	59.60	59.90	60.10	60.10	60.20	60.40	60.40	60.40	5 12
12	60.40	*.....	55.00	54.00	53.00	53.50	52.00	51.75	52.50	54.00	54.25	55.00	6 12
1 A. M.	55.25	56.75	56.00	55.95	56.25	56.75	57.82	57.62	57.50	57.82	57.82	58.00	7 12
2	58.80	59.10	58.00	57.37	55.75	54.50	54.50	54.50	54.75	55.00	54.50	54.50	8 12
3	54.75	55.25	55.50	55.75	55.75	56.25	56.25	56.75	56.75	56.75	56.75	56.50	9 12
4	55.75	55.75	55.75	55.75	56.50	57.25	57.50	57.75	58.25	59.50	59.75	59.50	10 12
5	59.50	59.75	59.75	59.50	59.75	59.75	60.25	60.00	60.00	60.25	59.75	60.00	11 12
6	59.75	60.40	60.50	60.60	60.50	60.10	60.25	60.75	60.65	60.50	60.90	60.95	12 12
7	61.00	60.90	60.80	60.65	60.40	60.50	60.60	60.70	60.50	60.40	60.60	61.10	1 12 A. M.
8	61.35	61.35	60.60	60.40	61.05	61.35	61.40	61.50	61.60	60.95	59.95	60.00	2 12
9	60.25	61.05	61.35	61.95	61.85	61.10	60.50	60.40	59.95	59.90	59.70	59.58	3 12
10	59.35	59.55	59.20	59.48	59.50	59.13	59.00	59.13	59.40	59.63	59.15	58.78	4 12
11	59.00	58.73	58.85	58.68	58.95	58.63	59.00	58.88	58.85	58.68	59.05	58.83	5 12
12	58.75	58.53	59.05	58.83	58.85	58.53	58.90	58.98	58.35	58.13	58.90	58.08	6 12
1 P. M.	58.05	58.03	58.10	58.08	58.05.	58.03	58.00	57.88	57.75	57.83	57.70	57.68	7 12
2	57.55	57.63	57.77	57.55	57.92	57.43	57.33	57.48	57.45	57.53	57.43	57.48	8 12
3	57.62	57.53	57.54	57.60	57.70	57.80	57.90	57.90	58.03	58.10	58.23	58.40	9 12
4	58.60	58.70	58.80	59.03	59.20	59.23	59.43	59.50	59.73	59.90	60.00	60.10	10 12
5	60.20	60.27	60.40	60.50	60.60	60.70	60.83	60.90	61.03	61.16	61.16	61.20	11 12
6	61.20	61.10	61.15	61.05	61.00	61.00	61.10	61.00	61.00	61.00	61.00	60.95	12 12
7	61.00	60.90	60.85	60.85	60.70	60.45	60.20	60.20	60.00	60.00	60.00	59.95	1 12 P. M.
8	59.90	60.00	59.95	59.90	59.85	59.50	59.45	59.30	59.15	59.05	59.00	59.00	2 12
9	59.05	59.10	59.05	59.00	59.00	59.00	59.10	59.05	59.00	59.00	59.05	59.05	3 12
10	59.00												4 12

* The magnet commences to move rapidly.

These readings were taken two minutes after the time stated in the table. The value of 1 scale division = 1′.

J. Wiesmer, observer from . . . . 4 12 A. M. to 8 22 P. M.
G. Rumpf, observer from . . . . 8 27 P. M. to 12 22 A. M.
J. T. Hoover, observer from . . . . 12 27 A. M. to 5 12

R. Clery, observer from . . . . . 5 17 A. M. to 9 32 A. M.
W. L. Nicholson, observer from . . 5 37 to 1 17 P. M.
J. H. Toomer, observer from . . . 1 22 P. M. to 4 17

DECEMBER 19 and 20, 1855.

Göttingen mean time.	0 m.	5 ms.	10 ms.	15 ms.	20 ms.	25 ms.	30 ms.	35 ms.	40 ms.	45 ms.	50 ms.	55 ms.	Washington mean time.
10 P. M.	61.00	60.60	60.35	59.90	60.00	59.85	59.80	59.80	59.60	59.70	59.90	59.80	4 12 P. M.
11	59.60	59.90	59.60	59.50	59.50	59.75	59.75	59.85	59.50	59.50	59.50	59.60	5 12
12	59.50	59.55	59.55	59.60	59.60	59.70	59.50	59.50	59.80	59.70	59.65	59.60	6 12
1 A. M.	59.65	59.50	59.50	59.50	59.60	59.60	59.70	59.80	59.90	59.80	59.90	60.00	7 12
2	60.00	59.75	59.75	60.00	59.75	59.75	60.00	59.75	59.75	59.75	59.75	59.00	8 12
3	59.00	59.00	59.00	59.75	60.00	60.00	60.00	59.75	59.75	60.00	60.00	60.00	9 12
4	60.00	59.00	57.75	57.75	58.00	58.75	59.00	59.75	59.75	59.00	59.75	59.00	10 12
5	59.00	59.75	59.50	59.75	60.00	59.75	60.00	60.00	60.00	60.00	59.50	59.50	11 12
6	59.60	59.75	59.45	59.45	59.20	59.35	59.50	59.80	60.00	59.85	59.85	60.15	12 12
7	60.00	60.20	60.10	60.10	60.20	60.30	60.25	60.82	61.00	60.65	60.25	60.10	1 12 A. M.
8	60.00	60.05	60.00	59.95	60.00	60.00	60.10	60.20	60.10	60.10	60.20	60.40	2 12
9	60.35	60.27	60.45	61.30	61.50	61.70	61.60	61.37	61.20	60.60	61.00	60.70	3 12
10	60.95	60.98	60.94	60.93	60.91	60.86	60.81	61.09	61.17	61.39	61.52	61.65	4 12
11	61.92	61.60	61.58	61.51	61.53	61.61	61.69	61.96	61.64	61.52	61.34	61.12	5 12
12	61.25	61.33	61.40	61.38	61.36	61.23	61.08	60.74	60.81	60.69	60.59	60.45	6 12
1 P. M.	60.47	60.32	60.23	60.00	59.53	59.21	59.13	59.08	59.65	59.20	58.95	59.50	7 12
2	59.00	59.00	58.85	58.80	58.80	58.25	58.15	58.00	58.25	58.45	58.35	58.57	8 12
3	58.45	58.62	58.55	58.25	58.45	58.57	59.52	59.62	59.75	59.90	60.25	60.00	9 12
4	60.00	60.00	60.00	60.00	59.95	59.85	59.65	59.75	59.95	60.00	60.00	60.00	10 12
5	60.25	60.10	60.05	60.95	60.75	61.00	61.50	61.45	61.40	61.50	62.00	62.20	11 12
6	62.10	62.00	62.00	62.10	62.10	62.20	62.20	62.15	62.20	62.50	62.60	62.70	12 12
7	62.85	62.70	62.70	62.80	62.80	62.60	62.70	62.50	62.30	62.40	62.50	62.60	1 12 P. M.
8	62.50	62.30	62.30	62.15	62.10	62.00	62.00	62.00	62.00	62.00	62.10	62.00	2 12
9	62.00	61.80	61.80	61.80	61.50	61.30	61.20	61.10	61.00	61.00	61.00	61.00	3 12
10	61.00												4 12

The readings were taken with the telescope. Value of 1 division of scale = 1′.

J. T. Hoover, observer from . . . 4 12 P. M. to 8 7 P. M.
G. Rumpf, observer from . . . . . 8 12 to 11 57
W. L. Nicholson, observer from . . 12 2 A. M. to 4 7 A. M.
R. Clery, observer from . . . . . 4 12 A. M. to 7 57 A. M.
J. E. Blankenship, observer from . . 8 2 to 12 7 P. M.
J. H. Toomer, observer from . . . 12 12 P. M. to 4 12

MAGNETIC TERM-DAY OBSERVATIONS

AT THE

MAGNETIC OBSERVATORIES AT EWING HARBOR, CAPE ORFORD, (OREGON TERR.;) SAN FRANCISCO, PRESIDIO; NEE-AH BAY, SCARBOROUGH HARBOR, CAPE FLATTERY.

DIFFERENTIAL OBSERVATIONS OF DECLINATION IN 1851 AND 1852.

The instrument used is theodolite magnetometer No. 3, and the observations were taken in a tent. Increasing scale readings denote a movement of the north end of the magnet to the east.

EWING HARBOR OBSERVATORY.

Latitude, 42° 44′ 23″. Longitude, 124° 28′ 52″ (8*h*. 17*m*. 55*s*.) west of Greenwich.

NOVEMBER 28, 1851.

Gottingen mean time.	Local time.	Scale readings.
h. m.	h. m.	
9 37 P. M.	1 00 P. M.	45.80
	30	45.80
	2 00	45.80
	30	45.90
	3 00	46.05
	30	46.40
	4 00	46.45
	35	46.60
	....	
	6 45 A. M.	47.60
	7 00	47.40
	30	47.65
	8 00	48.00
	30	48.10
	9 00	47.95
	30	48.00
	10 00	47.40
	30	47.15
	11 00	47.15
	30	47.15
	12 00	47.00
	30 P. M.	46.80
	1 10	45.80

G. Davidson, observer.

Value of 1 scale division = 1′.58.

Increasing numbers denote a movement of the north end of the needle to the east.

PRESIDIO OBSERVATORY.

Latitude, 37° 47′ 36″. Longitude, 122° 26′ 15″ (8*h*. 9*m*. 45*s*.) west of Greenwich.

FEBRUARY 27 and 28, 1852.

Göttingen mean time.	0 m.	6 ms.	12 ms.	18 ms.	24 ms.	30 ms.	36 ms.	42 ms.	48 ms.	54 ms.	San Francisco mean time.
10 P. M.	42.40	41.72	43.10	43.32	43.40	43.34	42.99	42.55	42.57	42.94	1 10.5 P. M.
11	43.50	43.66	43.55	43.67	44.15	44.71	45.06	45.00	45.05	45.17	2 10.5
12	45 72	45.79	44.95	44.24	44.15	44.10	43.90	43.10	42.90	43.20	3 10.5
1 A. M.	43.62	43.35	43.25	43.85	43.95	43.97	43.91	43.92	44.00	44.50	4 10.5
2	44.92	45.30	45.40	45.60	45.50	45.45	45.45	45.55	45.55	45.50	5 10.5
3	45.45	45.50	45.35	44.50	44.65	45.65	46.50	47.10	47.85	48.45	6 10.5
4	48.15	47.87	47.45	46.80	46.70	46.60	46.50	46.50	46.40	46.35	7 10.5
5	46.45	46.40	46.60	46.60	46.50	46.50	46.40	45.85	45.85*	45.95	8 10.5
6	47.15	51.49	51.74	48.00†	46.62	45.86	46.00	46.85	47.20	47.12	9 10.5
7	47.12	47.92	48.42	48.77	48.70	48.52	48.55	48.60	48.77	48.97	10 10.5
8	49.17	48.95	48.00	47.69	47.72	47.82	48.41	48.72	49.27	49.42	11 10 5
9	49.37	48.80	48.55	48.70	48.64	48.70	48.45	47.62	47.39	47.30	12 10.5
10	46.71	46.54	46.12	46.40	46.50	46.55	46.65	46.70	46.70	46.60	1 10.5 A. M.
11	47.50	47.60	47.00	46.65	46.60	46.85	46.62	46.75	46.60	46.50	2 10.5
12	46.25	46.30	45.80	45.55	45.15	45.00	45.10	45.40	45.35	45.40	3 10.5
1 P. M.	45.60	46.10	46.40	46.25	46.55	46.80	46.95	46.90	46.85	46.65	4 10.5
2	46.95	46.75	46.65	46.60	46.90	47.00	46.95	47.10	47.40	47.22	5 10.5
3	47.22	47.12	47.35	47.11	47.10	47.02	46.85	46.47	46.77	46.89	6 10.5
4	46.90	46.87	46.74	46.95	47.15	46.95	47.07	47.47	46.96	46.77	7 10.5
5	46.55	46.75	46.75	46.87	47.00	46.92	47.22	47.57	47.80	48.05	8 10.5
6	48.60	48.55	47.95	48.20	48.25	48.30	48.40	48.50	48.50	48.65	9 10.5
7	49.45	49.05	48.75	48.15	48.45	48.30	48.05	48.05	48.00	47.95	10 10.5
8	47.90	47.60	47.55	47.70	47 55	47.40	47.25	47.05	46.90	46.45	11 10.5
9	46.50	47.50	46.15	46.35	46.30	45.75	45.75	45.60	45.60	45.75	12 10.5
10											1 10.5 A. M.

G. Davidson, chief of party.

* All the observations previous to this are 17*s*. late, owing to an error of the chronometer used. † Two minutes late.

Value of 1 scale division = 1′.58. Increasing numbers denote a movement of the north end of the magnet towards the east.

MARCH 24 and 25, 1852.

Göttingen mean time.	0 m.	6 ms.	12 ms.	18 ms.	24 ms.	30 ms.	36 ms.	42 ms.	48 ms.	54 ms.	San Francisco mean time.
10 P. M.	44.75	44.95	44.91	44.90	44.80	44.82	44.75	44.67	44.87	44.92	1 10.5 P. M.
11	44.90	44.85	44.86	44.97	44.99	45 00	45.00	45.02	45.21	45.26	2 10.5
12	45.30	45.27	45.30	45.45	45.45	45.50	45.55	45.67	45.77	45.71	3 10.5
1 A. M.	45.80	45.90	45.92	45.91	45.86	46.00	46.00	46.00	46.10	46.07	4 10.5
2	46.07	46.15	46.05	46.05	45.95	46.00	46.00	46 15	46.00	45.92	5 10.5
3	45.95	45.95	46.00	46.05	46.00	46.00	45.90	45.85	46.00	45.95	6 10.5
4	46.00	46.10	46.10	46.00	45.95	46.00	46 10	46.05	46.05	46.05	7 10.5
5	46.20	46.10	46.10	46.20	46.10	46 25	46.10	46.20	46.40	46.55	8 10.5
6	46.40	46.30	46.20	46.25	46.25	46.25	46.15	46.15	46 10	46.10	9 10.5
7	46.50*	46.00	46.45	46.35	46.30	46.35	46.40	46.20	46 35	46.40	10 10.5
8	46.30	46.45	46 40	46.35	46.45	46.50	46.50	46.45	46.40	46.35	11 10.5
9	46.55	46.00	46.40	46.50	46.40	46.20	46.20	46.45	46.45	46.45	12 10.5
10	46.25	46.20	46.37	46.37	46.40	46.30	46.40	46.37	46.32	46.35	1 10.5 A. M.
11	46.47	46.47	46.47	46.45	46.40	46.35	46.37	46.42	46.50	46.50	2 10.5
12	46.50	46 52	46.60	46.57	46.57	46.55	46.62	46.62	46.60	46.62	3 10.5
1 P. M.	46.62	46.60	46.70	46.85	46.90	46.90	46.90	46.87	47.02	47.05	4 10.5
2	47.02	47.12	47.10	47.12	47.15	47.25	47.30	47.35	47.35	47.40	5 10.5

MARCH 24 and 25, 1852—Continued.

Göttingen mean time.	0 m.	6 ms.	12 ms.	18 ms.	24 ms.	30 ms.	36 ms.	42 ms.	48 ms.	54 ms.	San Francisco mean time.
3 P. M.	47.50	47.50	47.60	47.65	47.70	47.80	47.90	48.30	48.45	†	6 10.5 A. M.
4	†	48.60	48.70	48.65	49.00	49.10	49.15	49.25	49.50	49.60	7 10.5
5	49.90	49.95	50.00	50.00	50.05	50.10	50.10	50.15	50.15	50.20	8 10.5
6	50.35	50.25	50.10	50.20	50.05	49.90	49.85	49.75	49.60	49.20	9 10.5
7	49.00	48.65	48.65	48.30	48.05	47.95	47.70	47.35	47.10	47.00	10 10.5
8	47.00	46.95	46.35	46.50	46.40	46.15	46 00	45.60	45.50	45.45	11 10.5
9	45.40	45.15	45.00	44.80	44.70	44.65	44.45	44.35	44.40	44.45	12 10.5
10											1 10.5 P. M.

George Davidson, observer.

* Vibrating rapidly from 44.0 to 51.9. † Lost by dew settling on the instrument.

Instrument and scale value as before.

APRIL 21 and 22, 1852.

Göttingen mean time.	0 m.	6 ms.	12 ms.	18 ms.	24 ms.	30 ms.	36 ms.	42 ms.	48 ms.	54 ms.	San Francisco mean time.
10 P. M.	43.20	43.35	43.60	44.20	44.00	44.40	43.60	42.75	42.65	42.75	1 10.5 P. M.
11	42.60	43.75	43.22	43.25	44.45	44.15	44.85	45.40	45.25	45.30	2 10.5
12	45.50	44.60	44.65	43.75	44.10	44.50	44.25	44.15	44.35	45.05	3 10.5
1 A. M.	45.10	45.50	46.65	46.40	46.45	46.50	46.55	46.60	46.45	46.75	4 10.5
2	46.90	46.50	46.35	46.52	47.10	48.05	48 10	48.12	48.25	48.20	5 10.5
3	48.25	48.15	48.35	48.70	48.85	48.05	47.85	47.85	48.00	48.05	6 10.5
4	47.95	48.85	49.00	49.20	49.60	49.55	49.05	49.00	49.35	49.80	7 10.5
5	48.80	48.15	47.85	47.70	47.90	48.10	47.90	47.35	47.50	47.40	8 10.5
6	47.35	47.10	47.00	47.00	46.95	46.90	46.80	46.80	47.25	47.00	9 10.5
7	47.00	46.95	46.60	46.40	46.40	46.50	46.80	46.60	46.55	46.00	10 10.5
8	46.10	46.70	46.60	46.95	47.00	46.95	46.95	46.90	47.00	46.85	11 10.5
9	46.70	46.65	46.55	46.60	46.95	47.00	47.25	47.05	47.00	47.00	12 10.5
10	46.95	46.45	46.40	46.60	46.25	46.90	47.05	46.70	46.15	45.65	1 10.5 A. M.
11	45.75	46.00	46.90	46.25	46.50	46.80	46.85	47.00	47.10	47.00	2 10.5
12	47.15	46.95	46.70	46.50	46.85	46.85	47.00	46.70	46.00	47.65	3 10.5
1 P. M.	45.90	45.55	45.50	45.50	45.50	45.45	45.50	45.75	46.10	46.30	4 10.5
2	46.55	46.85	46.85	47.30	47.65	47.97	47.90	47.50	47.78	47.90	5 10.5
3	48.90	48.95	48.45	48.52	48.65	48.90	49.00	49.00	49.35	49.50	6 10.5
4	49.85	50.05	50.60	49.95	50.15	49.85	50.10	49.80	50.00	50.35	7 10.5
5	50.00	50.45	50.50	50.90	50.70	50.35	50.10	50.20	50.65	50.55	8 10.5
6	50.10	49.70	49.70	49.60	49.95	49.65	49.40	49.15	48.85	49.90	9 10.5
7	48.05	48.00	48.90	48.10	47.95	47.90	47.95	47.55	47.40	47.10	10 10.5
8	47.00	46.70	46.70	46.30	46.95	47.00	46.80	46.60	46.50	46.50	11 10.5
9	46.85	46.10	46.00	46.00	45.90	45.80	45.65	45.65	45.60	45.53	12 10.5
10											1 10.5 P. M.

George Davidson, observer.

Instrument and scale value as before.

MAY 28 and 29, 1852.

[illegible]	0 m.	6 ms.	12 ms.	18 ms.	24 ms.	30 ms.	36 ms.	42 ms.	48 ms.	54 ms.	San Francisco mean time.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	46.12	46.15	46.45	46.40	46.40	1 10.5 P. M.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	46.60†	46.40	46.37	46.52	46.75	2 10.5
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	47.50	47.55	47.55	47.75	47.75	3 10.5
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	47.75	47.80	48.05	47.95	48.07	4 10.5
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	48.30	48.40	48.30	48.35	48.65	5 10.5
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	51.90	51.00	50.85	50.60	51.10	6 10.5
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	50.85	50.70	50.55	50.45	50.10	7 10.5
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	48.50	48.20	48.00	47.80	47.60	8 10.5
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	47.30	47.45	47.50	47.55	47.80	9 10.5
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	47.75	48.00	47.90	48.00	47.85	10 10.5

MAY 28 and 29, 1852—Continued.

Göttingen mean time.	0 m.	6 ms.	12 ms.	18 ms.	24 ms.	30 ms.	36 ms.	42 ms.	48 ms.	54 ms.	San Francisco mean time.
8 A. M.	48.00	48.05	47.90	48.00	48.00	48.05	47.95	48.05	48.00	48.05	11 10.5 P. M.
9	47.90	48.00	48.00	48.15	48.15	48.25	48.05	48.25	48.00	47.80	12 10.5
10	47.90	47.65	47.35	47.15	47.30	47.15	47.30	47.42	47.35	47.45	1 10.5 A. M.
11	47.50	47.55	47.40	47.20	47.25	47.25	47.40	47.50	47.45	47.60	2 10.5
12	47.80	47.95	47.92	48.20	48.35	48.30	48.35	48.35	48.25	48.42	3 10.5
1 P. M.	48.50	48.90	48.85	48.92	49.00	49.05	49.05	49.15	49.35	49.42	4 10.5
2	49.50	49.45	49.45	49.60	49.80	49.90	50.00	50.15	50.30	50.50	5 10.5
3	50.60	50.85	50.60	50.75	51.25	51.35	51.65	51.60	51.75	51.80	6 10.5
4	51.80	51.80	51.75	51.90	52.00	51.95	51.80	51.65	51.60	51.45	7 10.5
5	51.35	51.40	51.30	51.10	51.10	50.95	50.75	50.50	50.45	50.45	8 10.5
6	50.30	50.35	50.15	49.95	49.65	49.50	49.25	49.20	49.15	49.45	9 10.5
7	49.20	49.15	49.00	48.95	48.75	48.75	48.62	48.40	48.30	48.00	10 10.5
8	47.80	47.55	47.20	47.25	47.25	47.10	47.00	47.00	46.90	46.75	11 10.5
9	46.50	46.45	46.55	46.70	46.70	46.75	46.70	46.75	◊		12 10.5
10											1 10.5

George Davidson, observer.

* Observation taken two minutes late.
† Observation taken one-half minute late.
‡ Observation three-quarters of a minute late.
◊ The magnetometer was overthrown by a cow rushing upon the magnetometer tent.

Instrument and scale same as before.

SCARBOROUGH HARBOR OBSERVATORY.

Latitude 48° 21′ 49″. Longitude 124° 37′ 11″ (8*h*. 18*m*. 29*s*.) west of Greenwich.

AUGUST 27 and 28, 1852.

Göttingen mean time.	0 m.	6 ms.	12 ms.	18 ms.	24 ms.	30 ms.	36 ms.	42 ms.	48 ms.	54 ms.	Scarborough Harbor mean time.
10 P. M.	46.10	46.20	46.30	46.10	46.10	45.75	45.50	45.35	45.60	45.62	1 1½ P. M.
11	45.58	45.60	45.67	45.95	45.67	45.85	46.30	46.27	46.20	45.70	2 1½
12	45.85	45.50	46.50	46.80	47.37	47.70	47.80	47.45	47.10	47.40	3 1½
1 A. M.	47.25	47.40	47.55	47.40	47.70	47.70	47.95	47.95	47.75	47.30	4 1½
2	45.42	48.30	47.00	46.95	46.95	47.40	44.00	50.20	51.92	53.92	5 1½
3	55.68	56.72	56.20	54.82	53.42	52.90	52.50	51.25	51.00	50.75	6 1½
4	49.50	47.75	46.22	45.67	45.57	45.85	46.25	46.70	46.90	46.95	7 1½
5	46.80	46.82	47.02	47.10	47.60	47.60	47.70	48.42	48.70	49.65	8 1½
6	49.45	49.50	49.90	50.50	51.10	51.30	49.95	49.90	49.90	48.75	9 1½
7	48.90	49.15	49.50	49.25	49.60	49.95	50.30	50.45	50.60	50.75	10 1½
8	50.70	50.55	50.05	49.80	49.45	49.55	49.80	48.65	46.85	46.55	11 1½
9	48.50	46.90	46.10	46.70	49.55	49.40	48.40	48.45	49.40	49.00	12 1½
10	45.95	47.15	45.75	46.45	48.35	45.15	47.85	48.15	48.10	47.35	1 1½ A. M.
11	45.60	45.10	45.45	45.67	48.55	46.60	48.35	48.70	49.45	49.60	2 1½
12	50.05	50.90	51.50	51.80	51.80	51.37	50.50	50.10	49.80	49.85	3 1½
1 P. M.	49.30	48.50	48.62	49.30	49.65	49.50	49.40	47.47	46.25	45.15	4 1½
2	44.10	44.45	44.98	45.77	46.42	47.72	47.92	47.84	47.35	48.05	5 1½
3	48.60	48.25	47.60	47.30	47.32	47.50	47.60	48.15	48.52	48.75	6 1½
4	48.60	49.60	50.05	50.68	50.75	51.52	52.15	52.52	53.12	53.45	7 1½
5	53.68	53.32	53.40	53.35	53.38	53.48	53.15	53.82	53.60	53.15	8 1½
6	53.20	52.45	52.30	51.95	51.65	50.85	50.40	49.70	49.60	49.55	9 1½
7	49.60	49.15	49.00	48.80	49.25	47.95	47.15	47.00	47.15	47.30	10 1½
8	47.05	46.60	46.00	45.50	44.90	44.65	44.50	44.20	44.35	44.30	11 1½
9	44.30	44.45	44.40	44.60	44.30	44.25	44.50	44.40	44.40	44.40	12 1½
10											1 1½ P. M.

G. Davidson, observer.

Value of 1 scale division = 1′.58. Increasing numbers denote a movement of the north end of the magnet to the east.

SEPTEMBER 22 and 23, 1852.

Göttingen mean time.	0 m.	6 ms.	12 ms.	18 ms.	24 ms.	30 ms.	36 ms.	42 ms.	48 ms.	54 ms.	Scarborough Harbor mean time.
10 P. M.	47.22	47.05	46.65	46.51	46.55	46.50	46.13	46.15	46.58	46.50	1 1½ P. M.
11	47.17	46.84	47.11	47.50	47.50	47.95	48.60	48.12	47.90	47.60	2 1½
12	47.55	47.45	46.87	46.97	47.21	47.40	47.34	46.16	46.26	46.40	3 1½
1 A. M.	46.35	48.72	48.87	48.95	49.50	48.74	46.75	46.85	47.00	48.30	4 1½
2	51.37	51.40	49.65	48.10	48.25	48.25	48.25	48.55	48.25	47.45	5 1½
3	46.75	47.12	47.30	48.85	50.23	50.52	51.97	58.25	51.80	48.25	6 1½
4	48.80	49.00	48.85	50.80	49.60	48.95	48.65	49.30	50.50	50.95	7 1½
5	50 78	51.85	52.85	51.67	53.20	56.90	59.80	56.77	51.45	59.35	8 1½
6	51.40	50.60	47.10	46.60	52.65	50.87	55.98	55.10	53.70	53.50	9 1½
7	52.00	52.17	51.20	50.65	49.75	48.77	49.00	49.22	48.90	48.25	10 1½
8	48.04	48.10	48.07	47.97	47.55	47.30	46.50	45.98	46.35	47.35	11 1½
9	48.35	49.52	50.45	51.10	50.90	49.41	46.37	43.80	43.40	43.27	12 1½
10	44.30	45.65	46.95	49.22	50.85	52.05	50.12	49.00	47.60	46.44	1 1½ A. M.
11	46.82	46.60	46.28	45.60	46.14	47.60	48.15	47.05	45.60	45.12	2 1½
12	44.72	43.61	42.50	42.38	43.17	41.77	40.05	39.40	40.80	42.10	3 1½
1 P. M.	*43.90	44.45	*45.35	45.25	46.00	46.77	47.35	47.60	47.05	47.60	4 1½
2	47.80	48.00	48.15	48.50	48.85	49.70	49.95	49.42	49.20	48.57	5 1½
3	48.70	48.20	48.30	48.50	48.82	49.50	49.30	49.70	49.50	49.65	6 1½
4	49.55	49.60	50.07	49.65	49.75	48.70	47.68	47.15	47.88	48.10	7 1½
5	47.70	47.40	47.00	47.25	46.95	46.52	46.02	47.37	45.90	46.10	8 1½
6	46.12	45.81	45.72	45.35	45.78	46.52	46.05	45.82	45.45	46.75	9 1½
7	48.25	48.15	48.85	49.55	49.05	49.20	47.62	47.45	47.07	46.55	10 1½
8	46.70	45.95	46.82	45.32	45.47	45.40	45.32	44.90	44.60	44.75	11 1½
9	44.42	44.15	43.75	44.10	44.35	44.30	44.05	43.52	43.32	43.45	12 1½
10											1 1½ P. M.

George Davidson, observer.

* One minute later. Scale same as before.

Scarborough Harbor mean time.

h. m.

At 12 44 Faint auroral light in magnetic north.

46 Two or three faint streamers 12° high, moving westward. Needle very steady at 43s.7.

1 14 Few streamers, and scarcely perceptible; light near the horizon.

1 20 Two streamers; needle unsteady, vibrating perpendicularly.

26 Two streamers, very faint.

55 Faint white light.

2 20 Illuminated patches flashing up, like some dark object suddenly illuminated and then left in shade.

h. m.

At 2 25 Needle vibrating perpendicularly. Same auroral appearances as preceding.

50 Very faint light near horizon.

3 23 Very faint light near horizon resembling masses of faintly-luminous clouds.

28 Increasing in brightness about magnetic north; needle vibrating 0.5 division.

35 Light disappearing from time to time as though a dark wave were rolling between us and it.

4 0 Auroral light entirely disappeared.

CORRESPONDING CHANGES

OF THE

DIURNAL MAGNETIC DECLINATION,

OBSERVED AT

MARBURG (ZU HESSE,)

LATITUDE 50° 48′ 47″ N.; LONGITUDE 8° 46′ 25″ E.

WITH

AN ACCOUNT OF THE INSTRUMENT AND MODE OF OBSERVATION,

BY

DR. C. L. GERLING,
PROFESSOR OF MATHEMATICS, &c., &c.

OBSERVATIONS AT MARBURG.

LETTER FROM DR. GERLING.

MARBURG, *den 7 April*, 1854.

WERTHER HERR: Gemäss Ihrer Aufforderung gebe ich Ihnen im Folgenden eine Beschreibung des Apparats und der Methode, welche bei den magnetischen Declinations-Beobachtungen gebraucht wurden, die in Uebereinstimmung mit den Ihrigen während Ihres Aufenthalts in Chile, hier angestellt sind. Die Beobachtungs-Tabellen, welche den Stand des Magnetes von 5*m*. zu 5*m*. Göttinger mittlere Zeit an den Terminstagen angeben habe ich Ihnen früher schon übersandt.

Zuerst muss ich daran erinnern dass die Beobachtungen in keinem eigentlich für diesen Gebrauch errichteten magnetischen Observatorium gemacht sind, sondern in einem Zimmer des Mathematisch-Physicalischen Instituts der Universität. Deshalb können sie auch nur für die *Variationen* der Declination von Nutzen seyn, mit Ausschluss jeder absoluten Bestimmung, welche in diesem Local nicht ausführbar ist.

Das von Breithaupt in Kassel angefertigte *Magnetometer* hat die ursprüngliche Einrichtung von Gauss, wie sie sich in dem bekannten Buche: *Resultate aus den Beobachtungen des magnetischen Vereins im Jahr* 1836, von Gauss und Weber, beschrieben und auf Tab. X abgebildet findet.

Der Magnet wiegt $3\frac{3}{4}$ Pfund, hängt an einem ungefähr 8 Fuss langen Strang von ungedrehter Seide, und zeigt eine Schwingungs-Dauer von 26 Secunden. Im Fernrohr des Theodolithen erscheint ein Scalen-Theil (Millimeter) unter einem Winkel von 18.″791, woraus, nach der Stellung des Instruments, der auf die Entfernung der Scale reducirte Drehungs-Werth des Spiegels folgt = 18.″797. Die Torsions-Kraft des Seidenstrangs kann im Mittel aus mehreren Bestimmungen der letzten Jahre zu $\frac{1}{6}\frac{1}{9}\frac{1}{0}$ der magnetischen Kraft gesetzt werden.

Natürlich kann weder der Stand des Theodolithen noch der Aufhängepunct des Seidenstrangs im Innern eines grossen, vorzugsweis in Fachwerk gebauten Hauses *absolut* fest seyn. Doch ist die Festigkeit sicher genügend um die Ablesung der *Variationen* zu verbürgen, wenn nicht etwa eine zufällige Störung durch Erschütterung des ganzen Gebäudes oder durch eine Fahrlässigkeit des Beobachters eintritt. Um solche zufällige Störungen (die dann immer gewissenhaft zu Protocoll genommen wurden) dem Auge des Beobachters sichtbar zu machen ist eine besondere Einrichtung getroffen. In dem Kasten des Magnets, unmittelbar unter dem beweglichen Spiegel ist ein Hülfs-Spiegel befestigt, welcher das Licht eines kleinen Loches in einem Blatt Blech, zum Fernrohr zurückwirft, welches Blech am Fussboden dicht neben dem Theodolithen befestigt, und von hinten durch eine Laterne beleuchtet ist. Auf diese Weise sieht der Beobachter im Gesichtsfeld seines Fernrohrs über dem beweglichen Bilde der Scale einen Lichtpunct, welcher fortwährend still stehen und vom Verticalfaden geschnitten werden muss, wenn alles in Ordnung ist. Sie werden finden dass nur wenige Abweichungen vorkommen.

Was die *Beobachtungs-Methode* betrifft, so beruht dieselbe auf dem bekannten Gesetz der Vibrations-Bewegung, nämlich dass das Mittel $\frac{1}{2}(a_1 + a_2)$ zwischen zwei Ablesungen a_1 und a_2 zu den Zeiten t_1 und t_2 welche um eine (einfache) Schwingungs-Zeit T von einander verschieden sind ($t_2 - t_1 = T$), übereinstimmen muss mit der Ablesung welche zu dem vorausbestimmten Zeitpunct $\frac{1}{2}(t_1 + t_2)$ gefunden seyn würde. So, um den Stand zu finden für einen bestimmten Augenblick z. B. 5*h*. 35*m*. mittlere Göttinger Zeit, würde man nothwendig nur *zwei* Ablesun-

gen um 5*h*. 34*m*. 47*s*. und 5*h*. 35*m*. 13*s*. zu machen haben, weil diese Zeiten um 26 Secunden verschieden sind.

Aber die Ihnen überschickten Beobachtungen beruhen nicht bloss auf zwei Ablesungen, sondern es wurden jedesmal *acht* Beobachtungen zu einem Resultat vereinigt um eine grössere Genauigkeit zu geben. Zu dem Ende wurde der Stand des Vertical-Fadens auf der Scale von 13*s*. zu 13*s*. zu acht Zeitpunkten abgelesen, deren arithmetisches Mittel mit der vorausbestimmten Zeitangabe übereinstimmte; so dann wurden sechs einzelne Mittel genommen aus der ersten Ablesung und der dritten, der zweiten und vierten u. s. w. Endlich wurden diese sechs einzelnen Mittel zu einen *Hauptmittel* vereinigt, welches (nach zwei oder dreimaliger Nachrechnung) dann eingetragen, und in die Ihnen übersandten Tabellen neben die vorausbestimmte Zeit geschrieben wurde. Für den oben angeführten Zeitpunct 5*h*. 35*m*. stand also die Beobachtung und Rechnung ursprünglich wie folgt.

Voraus bestimmte Zeit.	Ablesungs-Zeiten.	Ablesung.	Einzelne Mittel.	Hauptmittel.
	h. *m*. *s*.			
	5 34 15	a_1		
	28	a_2	$a_1 = \frac{1}{2}(a_1 + a_3)$	
	41	a_3	$a_2 = \frac{1}{2}(a_2 + a_4)$	
h. *m*. *s*.	54	a_4	$a_3 = \frac{1}{2}(a_3 + a_5)$	
5 35 0	- - -	- -	- - - - - -	$\frac{1}{6}(a_1 + a_2 + a_3 + a_4 + a_5 + a_6)$
	35 7	a	$a_4 = \frac{1}{2}(a_4 + a_6)$	(Welches Hauptmittel eigentlich zu 0*s*.5 statt zu 0*s*.0 gehört, aber ohne irgend practischen Unterschied.)
	20	a_6	$a_5 = \frac{1}{2}(a_5 + a_7)$	
	33	a_7	$a = \frac{1}{2}(a_6 + a_8)$	
	46	a_8		

Setzt man nun voraus die Beobachtungen wären absolut genau, und die Schwingungs-Zeit wäre ohne irgend welche Abweichung = 26*s*.00; so ist offenbar, dass für den Fall gänzlicher Unveränderlichkeit des Schwingungmittelpuncts während des Zeitraums von 5*h*. 34*m*. 15*s*. bis 5*h*. 35*m*. 46*s*., seyn müsste $a_1 = a_2 = a_3$, u. s. w. und dass gleichfalls seyn müsste $a_1 = a_5$; $a_2 = a_6$; $a_3 = a_7$; $a_4 = a_8$. Im Gegentheil aber, wenn eine langsame und stetige Aenderung der Declination während dieses Zeitraums eingetreten wäre, so würde sich eine stetige Ab- oder Zunahme in den Zahlen a_1; a_2; a_3 u. s. w. zeigen, dergestalt dass, falls die Aenderung der Zeit proportional gewesen wäre, das Hauptmittel doch genau dem voraus bestimmten Zeitpunct entspräche.

Da nun aber Abweichungen von dieser theoretischen Regelmässigkeit nothwending statt finden mussten, entweder durch die unvermeidlichen Beobachtungsfehler oder durch sprungsweise Aenderungen des Erd-Magnetismus; so wurden noch besondere Zeichen gewählt um solche Unregelmässigkeiten in den Tabellen anzumerken; wenn nämlich auch nur *eins* der einzelnen Mittel von dem Hauptmittel mehr als 0.50 (Scalentheile oder Millimeter) und weniger als 1.00 abwich, so wurde die Zahl des Hauptmittels punctirt (:); wenn aber eine Abweichung >1.00 in einem einzelnen Mittel vorkam, so wurde die Zahl doppelt punctirt (::). Ausserordentliche Störungen, z. B. veranlasst durch Erschütterung des ganzen Gebäudes wurden dann noch besonders am Rande angemerkt.

Endlich muss noch hinzugefügt werden, dass die Beobachtungen von 2½*m*. zu 2½*m*. während der Stande von 5*h*. zu 6*h*. Göttinger M. Z., an den ersten Tagen von Monaten, die ich Ihnen mitgetheilt habe, auf dieselbe Weise angestellt sind. So also z. B. wenn nach 5*h*. 35*m*. 0*s*. eine zweite Beobachtung für 5*h*. 37*m*. 30*s*. gemacht werden sollte, so wurde die erste Ablesung um 5*h*. 36*m*. 45*s*. gemacht, die achte aber um 5*h*. 38*m*. 16*s*.

GERLING.

Herrn Lieut. GILLISS, *Washington*.

MAGNETISCHE DECLINATIONSVERAENDERUNGEN

BEOBACHTET ZU MARBURG.

AM 19 und 20 DECEMBER, 1849.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
10	*a* 590.77	590.58	591.32	592.05	593.40	593.90	593.17	592.93	592.78	593.27	594.12	597.08
11	597.23	596.64	594.83	*592.80::	592.19	593.37	594.89	595.23	594.63	593.55	593.24	*b* 594.13
12	594.29	593.02	592.98	593.62	594.66	594.32	593.95	592.45	590.83	589.75	591.13	592.31
13	593.29	593.28	594.48	595.44	593.63	593.66	594.39	594.56	594.37	594.66	593.91	591.73
14	*c* 591.05	592.23:	592.38	592.72	592.15	591.43	591.27	591.15	592.13	591.58	591.59	591.88
15	592.44	592.83	593.00	593.42	593.43	593.88	594.53	595.28	595.52	594.83	594.16	595.00
16	*d* 594.24	593.59	594.23	594.56	†	594.03	594.49	594.78	595.04	594.77	593.99	593.48
17	592.63	592.53	591.33	591.04	591.23	591.22	591.75	592.30	592.51	593.05	592.75	592.57
18	593.40	593.72	594.04	*e* 594.38	595.00	594.95	595.58	594.88	595.00	595.17	594.54	594.63
19	594.58	594.87	594.79	594.83	595.08	595.00	594.92	594.97	594.76	594.46	594.63	594.38
20	594.02	594.71	*f* 594.80	594.48	593.92	594.28	593.97	593.86	593.88	592.98	591.48	591.78
21	591.31	590.89	590.05	589.53	590.07	590.00	*587.47:	589.16	588.81	588.31	588.48	588.16
22	588.30	587.46	587.01	586.33	*g* 585.12	585.02	584.50	584.80	584.60	585.12	584.73	585.00
23	585.13	585.65	584.22	584.02	583.85	583.38	583.05	582.88	582.32	582.03	581.28	580.03
0	*h* 581.57	580.05	580.11	583.63	580.11	579.03	579.53	578.24	578.20	577.88	575.46	575.17
1	575.31	577.30	575.36	575.87	575.33	574.98	575.05	575.14	575.33	574.63	573.61	571.64
2	*b* 571.38	571.68	569.85:	568.68	573.59	572.13	568.74	569.53:	574.61	571.77	573.98	572.85
3	572.94	573.43	575.44	577.94	578.84	*577.82:	577.80	577.68	577.78	576.99	576.53	574.78
4	573.40	569.73	567.39	*i* 566.57	565.60	562.72	561.65	559.49	556.65	553.20:	550.86	552.15
5	553.60	556.70:	563.50	570.15:	573.09	576.49	581.23:	583.76	584.96	586.18	587.08	587.38
6	588.19	*j* 589.30	590.05	591.72:	591.83	591.81:	591.59:	590.46:	590.37:	591.56	591.96	593.60:
7	593.98:	593.80	593.30	595.07:	596.04:	596.67	597.00	598.30	599.24:	600.21	597.58	596.45
8	597.00	*k* 594.57	594.23	593.00	594.57	595.91	596.24	596.99	597.50	596.27	596.07	596.88
9	597.08:	597.57	598.33	596.57	596.23	596.39:	598.00	597.57	596.00	595.02	594.53	596.19
10	597.28:											

Bemerkungen.

Umstände wie früher. † Die Beobachtung fehlt.

* Störung, vergl. Protocol.

a Gerling. *e* Tündell. *i* Gutmann.
b Schoenfeld. *f* Klinkerfues. *j* Hach.
c Berkenbusch. *g* Ewald. *k* Knoblauch.
d Süss. *h* Lesser.

Zeitbestimmung.

	h. m.		h. m. s.	
19 December	5 17	Uhr Z. =	5 12 17.98	M. Z.
20 December	20 25	=	20 19 12,20	

Da am 20 Decbr. sicher richtig beobachtet ist; so wird mehr als wahrscheinlich, dass am 19 Decbr. bei Stellung der Uhr ein Irrthum vorgefallen ist, demzufolge die Uhr eine Minute früher ging als beabsichtigt war, so dass also zu 9*h*. 59*m*.; 10*h*. 4*m*. u. s. n. nach der Göttinger Zeit beobachtet wurde.

AM 23 und 24 JANUAR, 1850.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
10	a 599.10	600.05	600.10	598.99	598.36	597.52	596.08:	595.08	592.83	592.11	592.53	593.33
11	594.25	593.55	593.00	591.97	591.65	591.08	591.63	590.81	b 589.07:	588.18	588.46	589.31
12	590.00:	589.28	588.63	588.11	587.83	587.46	587.70	587.40	587.92	587.97	588.18	588.52
13	588.96	588.74:	588.64	588.02	588.04	586.90	586.32	586.74	586.75	586.51	587.36:	590.13
14	591.94	c 590.97:	589.84:	588.28	588.53:	587.77:	583.63	578.12:	572.05:	567.26:	568.26:	570.66:
15	571.90:	574.61	577.78:	581.62	583.73	586.32	588.76	591.75:	592.87:	594.81:	595.34	595.08
16	593.58	d 592.95	593.33	592.78	593.23	593.43	593.79	593.14	592.97	593.99	593.63	594.31
17	594.81	594.75	594.82	594.60	594.73	593.36	594.78	594.92	594.23	594.05	593.95	594.13
18	593.08	592.02	e 590.83	589.50:	590.04	588.88	590.83:	589.13	591.29	590.21	591.75	592.67:
19	592.25	591.63	591.75:	591.96:	590.67:	590.96	590.17	590.00	589.83	589.71	589.79	589.96
20	589.79	590.79:	c 590.73:	592.29:	590.43:	591.21	591.40:	590.91:	590.68	591.21:	592.28:	590.18
21	590.20:	589.77	f 589.56:	588.88	588.29	587.54	587 28	586.42	585.80:	586.32:	587.48:	586.45:
22	585.09	584.53	584.35	584.03	583.68	583 09	582.72	581.47	581.38	581.16	578.24	
23	578.46	577.25	578.48	575.73	575.06	575.30	575.25	575.47	575.45	574.42	574.13	572.66
0	f 572.73:	571.67	572.18:	569.98	570.16	570.11	570.19	570.27	569.88	568 88:	568.78	569.62
1	568.29	568.23	565.84	565.98	567.52	568.23	568.56	568.57	570.10	568.88:	568.03	568.55
2	568.72	b 568.68 *	568.74:	† 568.47	572.35	574.05	575.38	576.00	577.60	577.73	577.86	577.90
3	578.48	579.00	580.20	579.83	580.69	580.63	581.09	581.41	581.68	581.55	581.78	581.33
4	582.10	581.90	582.16	583.09	583.83	g 584.23:	583.92:	584.07	584.08:	585.64	584.03:	584.43
5	584.67:	584.13	584.83	589.93:	591.14	590.03	590 05:	589.30:	588.58:	587.40	587.22	586.75
6	588.67:	h 589.49:	590.37	592.08	592.81	593.60	592 49	590.39	589.60	589.67	589.33:	588.85
7	588.34	587.33	587.72	588.72	589.78	589.05:	588.43:	588.38:	588.17	588.52	589.02	589.33
8	590.11	590 33	591 25	591.96	i 589.73	590.49	590.17:	590.19	589.78:	590.71:	591.82	591.63
9	591.39:	591.71	593.07:	595.01	595.25	596.34:	596.96:	596.65	595.72	594.23	592.71:	594.96
10	603.86:											

Bemerkungen.

Umstände wie früher. * Stand richtig gefunden.

† Von hier ab stand corrigirt. Die vorigen Zahlen sind um 3.8 — 4.0 zu erhöhen. Conf. Protocol.

a Gerling. d Klinkerfues. g Berkenbusch.

b Schoenfeld. e Tündell. h Hach.

c Süss. f Lesser. i Becker.

Zeitbestimmung.

	h. m.		h. m. s.	
23 Januar	7 2	Uhr Z. =	6 57 17.95	M. Z.
24 Januar	19 49	=	19 44 1.17	

AM 22 und 23 FEBRUAR, 1850.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
10	621.48	628.95	635.35	638.63	639.05	659.07	664.48	659.74	648.47	641.93	639.92	627.83
11	625.18	622.75	624.72	625.50	626.03	621.35	620.13	618.77	620.59	621.82	626.09	623.45
12	622.73	a 623.05	622.23	622.29	624.13	623.89	628.03	627.04	631.15	634.60	640.58	629.83
13	627.24	628.15	628.53	624.44	620.68	619.50	618.79	614.96	611.72	607.58	608.72	610.53
14	b 606.75	607.78	607.19	604.53	606.73	608.23	608.27	607.49	605.31	604.86	606.52	607.18
15	610.08	. .	606.73	612.65	616.97	617.08	614.02	613.29	612.08	611.01	607.67	c 608.65
16	604.80	609.82	614.59	612.11	617.56	617.30	619.34	618.95	620.62	627.18	617.33	612.40
17	613.99	612.86	611.38	605.74	606.08	609.14	608.47	608.11	606.05	608.67	608.58	608.21
18	598.99	608.14	619.28	612.74	610.94	611.55	612.10	612.10	612.61	613.52	616.11	617.29
19	616.44	616.27	619.48	618.79	614.84	620.91	626.92	617.37	629.63	610.43	614.96	614.40
20	617.60	d 614.14	633.07	627.43	623.47	627.73	627.96	620.69	595.67	609.70	614.30	615.61
21	625.83	622.23	623.38	619.01	616.65	610.46	607.99	609.38	612.10	614.30	614.89	c 610.75
22	609.99	611.38	611.78	613.58	611.42	601.61	610.14	610.28	604.82	603.05	599.94	604.59
23	604.57	600.52	604.51	602.79	601.36	599.03	593.54	607.41	596.57	599.04	596.60	e 599.42

AM 22 und 23 FEBRUAR, 1850—Continued.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
0	595.94	592.52	597.35	562.88	574.28	581.73	588.75	572.31	555.27	569.91	575.43	*a* 503.34
1	527.94	569.60	586.85	573.25	552.21	557.55	547.37	565.72	573.39	580.37	569.42	597.58
2	603.85	595.40	578.40	594.66	597.94	599.93	595.91	558.88	558.00	557.91	572.61	*f* 553.58
3	574.71	556.31	553.36	563.57	560.34	563.63	564.59	566.99	565.38	588.84	579.99	581.43
4	587.98	608.78	604.09	596.44	578.93	567.48	581.08	587.11	582.03	583.30	589.71	596.11
5	591.88	589.82	587.18	587.23	593.67	593.31	591.14	594.93	599.61	597.00	595.53	*a* 597.63
6	600.58	596.67	600.02	605.82	603.58	612.32	607.10	611.73	607.17	606.30	606.53	606.12
7	607.27	599.58	595.86	596.23	599.38	602.91	603.50	602.37	608.26	627.79	649.69	632.34
8	*g* 610.73	577.76	554.67	567.42	580.93	585.21	587.37	607.58	609.04	618.68	620.46	635.58
9	640.50	619.04	611.73	609.44	590.99	586.73	596.18	609.29	612.98	611.31	620.74	618.38
10	*b* 603.44											

Bemerkungen.

Umstände wie früher.

a Schoenfeld. *b* Berkenbusch. *c* Klinkerfues. *d* Süss. *e* Lesser. *f* Vorlaender. *g* Hach.

Zeitbestimmung.

	h. m.	h. m. s.
22 Februar	6 4 Uhr Z.	= 5 59 9.54 M. Z.
23 Februar	20 37	= 20 32 5.00

AM 20 und 21 MAERZ, 1850.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
10	602.32	602.12	602.23	601.95	602.58	602.27	602.38	602.75	602.23	603.49	603.38	603.50
11	603.78	603.77	604.25	604.23	604.33	604.67	604.10	604.85	604.61	604.66	604.80	*a* 604.91
12	605.52	605.00	605.16	605.73	605.36	605.82	605.78	605.58	605.57	605.50	605.44	606.00
13	605.85	606.05	605.99	606.13	606.23	605.94	606.33	606.22	606.37	606.33	606.48	606.41
14	606.35	606.59	606.23	606.23	606.47	606.61	606.67	606.64	606.71	606.79	606.85	606.81
15	606.84	606.82	606.76	606.91	*b* 606.71	606.68	606.88	607.14	607.35	607.21	606.73	607.38
16	606.98	607.31	607.21	607.26	607.60	607.84	608.03	608.29	607.74	607.75	608.13	607.73
17	608.23	608.16	608.69	608.42	608.28	608.43	608.74	608.93	608.73	609.47	609.78	608.73
18	609.95	*c* 610.06	610.54	610.42	610.64	610.01	611.21	611.33	610.88	611.85	612.38	613.26
19	613.83	614.32	614.79	615.41	616.37	616.66	617.03	616.73	617.45	618.75	620.38	620.59
20	620.63	621.69	621.57	622.10	622.53	622.16	622.13	622.86	623.30	622.75	621.83	622.76
21	622.31	620.82	620.42	619.55	619.08	618.16	617.13	616.49	614.74	*d* 613.20	610.38	607.83
22	605.88	604.19	602.93	601.50	599.61	597.14	595.63	593.90	593.23	592.81	591.07	590.63
23	590.24	591.83	590.81	589.66	587.82	587.28	586.63	584.28	581.39	580.43	579.36	577.33
0	*b* 574.80	574.20	574.38	573.81	573.78	573.46	573.03	570.80	571.31	570.44	570.20	569.17
1	567.83	566.80	567.88	567.29	567.43	569.03	569.88	572.08	572.14	572.90	*a* 574.50	574.45
2	574.46	573.12	573.58	572.95	573.85	573.41	574.26	575.10	575.39	577.88	579.68	579.79
3	581.31	580.38	580.15	580.38	582.12	584.84	587.25	589.83	589.95	588.39	587.17	*e* 586.42
4	586.93	587.97	590.08	591.58	592.84	594.01	593.63	595.68	596.90	598.46	603.98	604.72
5	609.67	610.72	613.32	614.03	616.03	614.23	614.05	611.88	610.33	608.31	606.18	*b* 604.87
6	604.65	604.77	604.16	603.18	602.37	601.92	601.73	601.41	601.71	602.19	601.52	601.29
7	601.04	600.67	600.53	601.00	601.30	602.20	602.68	602.99	603.29	603.53	603.41	603.19
8	603.13	*f* 603.21	603.52	603.39	603.32	603.52	603.38	603.20	604.96	606.68	606.89	605.71
9	605.07	604.30	604.63	605.52	604.88	604.52	607.64	611.83	623.34	623.50	620.45	617.76
10	*d* 614.40											

Bemerkungen.

Umstände wie früher.

a Süss. *b* Schoenfeld. *c* Klinkerfues. *d* Seibert. *e* Nicolai. *f* Gutmann.

Zeitbestimmung.

20 Maerz	5 37 Uhr Z.	= 5 32 3.33 M. Z.
21 Maerz	19 7	= 19 1 54.83

AM 24 und 25 APRIL, 1850.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
10	a 604.53	605.22	605.64	606.10	607.48	608.32	609.12	609.42	610.51:	608.78:	607.52	607.83:
11	609.39	610.03:	613.03	616.56:	621.12:	624.54	626.73	627.70	628.52	628.71	628.16	628.19
12	625.13	626.14	627.73	628.29	629.37	629.54	616.67:	*603.69::	598.03::	594.95	598.76	604.70
13	613.32	610.24:	610.51	611.65	612.16	611.58	612.42	620.29:	623.31	626.24	628.64	630.77:
14	634.42	637.56	641.78	643.44	644.13	642.80	641.20	638.41	637.81	634.52:	629.67	628.10
15	626.22	626.36	622.15	624.76	622.23	621.48	619.08	620.08	620.91	621.14	622.10	622.07
16	622.53	622.72	621.32	620.52:	622.22	619.55:	619.36:	620.00	619.67	619.97	620.52	620.59:
17	620.37	621.53	621.72:	622.39	622.22	622.18	620.78:	621.60	621.31	621.78	623.95	621.89
18	622.56	. . .	621.53	621.31	622.56	624.46	622.12:	624.06	626.50	627.11	627.38	624.62:
19	624.29	622.15:	626.43:	622.41	624.14	624.18	625.52:	624.29	625.70	628.85	625.49	624.02
20	622.56	622.46:	624.42:	623.19	624.43	623.65	622.53	624.01	623.15	622.97	622.96	621.34
21	620.57	621.19	618.46	618.36	617.53	617.53	616.20	615.05	614.63	614.41	611.88	610.28
22	609.34	608.44	607.71	606.52	605.34	604.88	605.26	604.50	604.06	603.49	602.64	601.37
23	600.55	599.79	597.40	597.10	596.56	596.53	595.43:	593.21	592.56	593.53	592.03:	591.80
0	590.92:	590.79	590.56 a	589.40:	586.55	586.52:	585.40	584.43:	584.03	583.91	584.37	583.59
1	582.21	584.79:	585.29:	583.53	583.48	582.56:	581.86	581.42	580.79:	583.66	584.16	584.02
2	583.58	585.04:	586.38:	586.34	586.11	587.13	587.09	587.53	587.88	587.92	587.73	588.66
3	588.80	590.10	590.42	590.10	590.34	590.48	590.30	591.26	590.90	591.22	592.55	592.95
4	592.00:	594.53:	596.10	596.01	596.79:	596.34	597.53:	598.73:	599.29	. . .	599.61	600.21
5	601.05	601.96	601.37	602.53:	603.12	602.86	604.52	605.32	605.96	606.13	602.20	‡607.18
6	607.14	606.44	606.34	608.30	609.43	609.21	609.46	609.76	609.30	609.67	610.00	609.48
7	609.08	610.00	608.90	608.91	608.43	608.40	608.79	608.64	608.50	608.49	608.63	609.05
8	608.14	608.92	610.40	610.17	610.21	610.13	610.00	610.00	610.00	610.00	610.00	610.00
9	610.00	610.00	609.75	609.00	608.50	608.50	609.08	609.17	609.50	610.33	611.63	612.00
10	613.00											

Bemerkungen.

Umstände wie früher.

* Unvollständige Beobachtung. ‡ Wagenstörung.

† Störung durch einen Wagen.

a Schonfeld. d Claus. f Gutmann.
b Klinkerfues. e Nisaber. g Tündell.
c Seibert.

Zeitbestimmung.

	h. m.	h. m. s.
24 April	8 37 Uhr. Z.	= 8 32 32.41 M. Z.
25 April	20 37	= 20 32 23.77

AM 24 und 25 MAI, 1850.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
10	592.84	593.11	593.58	592.84	593.39	594.49	595.04	594.87	595.27	595.93	595.95	595.58
11	595.01	595.34	595.39	595.49	595.80	597.05	597.24	597.63	597.33	596.43	595.60	a 595.80
12	595.04	595.07	595.84	595.94	596.47	596.89	597.44	598.76	598.83	598.46	598.55	598.48
13	597.58	597.78	597.10	596.08	595.61	596.79	597.98	596.91	597.36	596.71	597.38	b 597.15
14	598.06	598.04	598.19	597.00	597.37	596.17	597.38	596.23	597.27	597.69	597.33	598.38
15	599.11	600.00	600.01	600.40	601.70	602.49	602.44	602.54	602.73	602.42	602.97	c 603.04
16	603.46	604.16	603.73	604.63	607.18	608.26	607.77	608.86	609.83	609.04	610.89	
17	610.00	611.54	610.77	611.47	613.55	613.66	611.05	613.28	614.51	614.53	613.74	d 614.35
18	615.00	615.91	615.19	615.32	615.94	617.44	617.16	615.78	612.17	612.00	610.61	610.17
19	609.98	611.39	611.97	614.75	617.31	614.40	615.28	615.18	615.08	614.67	615.02	e 617.13
20	611.74	615.64	616.53	615.76	615.62	615.06	614.12	612.29	610.80	610.39	609.93	608.79
21	606.00	606.04	604.38	603.35	604.39	601.81	601.17	600.42	599.89	599.48	599.29	b 598.09
22	597.61	597.44	596.75	594.71	594.29	594.34	595.38	593.92	592.98	589.53	589.68	586.63
23	584.04	584.04	584.07	584.05	584.08	584.54	581.35	579.53	579.32	579.63	579.32	f
0	575.96	574.17	574.00	574.10	573.98	572.68	570.14	571.00	569.88	569.37	570.59	569.13
1	574.01	576.07	574.17	573.17	572.79	574.16	574.88	575.32	575.43	575.85	576.16	g 576.78
2	576.04	576.10	576.03	576.38	575.59	587.41	587.47	581.73	583.80	585.63	584.12	583.73
3	584.07	584.11	586.44	586.06	588.39	588.70	588.81	590.13	591.46	594.05	594.26	h 595.58
4	595.04	594.04	594.00	594.00	594.28	595.00	594.72	595.23	595.91	595.89	596.03	595.58

AM 24 und 25 MAI, 1850—Continued.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
5	596.13	596.09	597.21	598.13	599.13	599.85	601.28	603.28	604.31	604.87	605.35	*i* 604.83
6	605.66	604.57	603.82	601.03	600.64	599.40	598.09	598.00	597.80	597.26	596.32	595.44
7	594.83	593.80	594.47	593.05	592.93	592.41	591.99	592.83	593.19	. . .	590.99	*f* 590.96
8	591.04	590.67	590.15	590.32	589.97	589.65	589.83	589.78	590.30	589.80	589.37	589.52
9	589.38	588.70	588.45	588.03	587.70	587.85	587.50	587.33	587.03	587.02	586.90	*j* 587.03
10	. . .											

* *Bermerkungen.*

Umstände wie früher.

a Schoenfeld. *b* Lesser. *c* Süss. *d* Gutmann. *e* Nicolai. *f* Klinkerfues. *g* Seibert. *h* Hering. *i* Romer. *j* Ewald.

Zeitbestimmung.

24 Mai . . . . 5 6 Uhr. Z. = 5 1 20.13 M. Z.
25 Mai . . . . 20 46 = 5 41 14.32

AM 19 und 20 JUNI, 1850.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
10	*a* 576.87	576.78	576.28	575.12	575.02	573.88	574.63	573.34	575.72	577.08	578.34	580.07
11	579.18	578 25	578.97	577.96	577.12	577.61	577.66	577.69	577.93	577.75	578.21	578.55
12	*b* 579.93	578.94	579.47	578.29	577.82	579.43	578.95	579.85	580.63	580.02	580.25	577.98
13	579.23	579.98	581.51	581.56	581.77	581.21	581.08	581.20	582.23	583.34	584.72	585.17
14	*c* 584.81	585.27	585.45	585.72	586 35	584.48	583.86	583.38	581.98	582.52	583.63	584.47
15	583.54	582.47	585.48	584.21	585.82	584.38	585.82	586.97	586.79:	586.47	586.61:	586.20:
16	*d* 587.33:	588.12:	588.20	587.83	587.58	589.25:	589.42:	589.79	589.83	590.70:	590.98:	591.74:
17	593.27	594.03	593.14:	592.68:	594.54	592.79:	593.28	590.93:	591.38:	593.03	593.90	593.98
18	*e* 593.90:	595.31:	595.98:	697.35:	. .	594.91:	593.86:	594.88:	595.54:	594.72:	594.98:	595.87:
19	595.94:	595.38:	594.82	595.99	597.76	597.07	597.22	598.38	600.80:	599.73:	598.45:	594.89:
20	*f* 595.15:	595.12:	595.47:	595.73	595.23	594.62	593.65:	595.40	594.78	593.21:	595.78:	595.03
21	594.70	592.71	593.67:	591.66:	595.02	594.78	594.85	594.89	594.64	594.18	594.14	594.90:
22	*g* 585.04*	586.28	584.32	584.99	583.12	581.93	581.18	579.85	578.16	† 575.02::	573.23	570.63
23	568.82	567.21	565.13	563.51	562.16	560.89	559.39:	567.52	556.13:	553.59	551.70::	551.68
0	551.23:	550.29	549.44	550.02:	*h* 550.46 ‡	550.59	551.10	551.24	551.83	550.64	550.74	551.29:
1	‡ 554.94:	557.83:	556.89:	557.92:	557.16:	557.37:	557.69	558.41	559.03	558.56	558.96	559.43
2	559.33	559.50	† 558.28:	559.71	560.47	560.72	561.30	562.89	‡ 561.68	561.23	561.31	561.78
3	561.93	562.23	561.35:	. .	562.19:	561.94	561.68	562.29	562.99	563.09	563.63	564.71:
4	*a* 565.08	565.63	566.06	567.58	566.89	566.24	567.27	569.12	569.66	‡ 570.50::	570.83	571.38
5	571.88	572.43	572.93	572.78	573.87	‡ 572.94::	574.11	574.33	574.82	574.99	574.81	575.61
6	*f* 575.48	576.63	580.36:	578.72	578.93	580.04	579.08	579.07	578.74	578.89	579.09	580.02
7	580.97:	580.00	579.08	579.05	580.01	580.00	580.05	580.07	580.00	580.03	580.00	578.73
8	*j* 579.00	578.73	578.35	578.05	577.64	577.66	577.45	577.27	577.29	577.13	577.23	577.02
9	576.75	577.17	577.24	577.28	577.78	577.13	576.77	577.21	576.38	576.69	576.92	576.86
10	576.52											

Bemerkungen.

Umstände wie früher.
* Stand berichtigt so dasz diese Zahl 2 mm. vergrössert werden.
† Stand nach 45*m*. wieder berichtigt so dass die vorigen Zahlen um 1*m*. vergrössert werden müssten.
‡ Wagenstörung.

a Schoenfeld. *b* Berkenbusch. *c* Seibert. *d* Römer. *e* Hering. *f* Schmidt. *g* Gerling. *h* Claus. *i* Klinkerfues. *j* Lesser.

Zeitbestimmung.

	h. m.	h. m. s.
19 Juni	3 48 Uhr. Z. =	3 43 18.7 M. Z.
20 Juni	19 13 =	19 8 16.1

AM 24 und 25 JULY, 1850.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
10	576.68	576.01	577.23	577.16	578.29	579.57:	575.93:	575.64:	579.83	582.22	587.72:	579.24
11	589.45	588.38	589.40	593 28	595.38	595.03	597.56	597.93	598.97:	596.72	597.88	a599.58:
12	602.50	603.68	604.93	604.95	600.25	594.57:	586.38:	577.22:	565.56:	556.39:	554.66	558.71
13	568.02:	572.77:	570.00	569.68	574.25:	588.69	588.60	581.27	583.46	586.63:	589.39	589.53:
14	591.46	592.45	b592.59	592.84	591.96	592.09	592.89	591.98	590.74	590.24	588.93	589.39
15	589.80	590.09	589.48	588.53	589.09	589.12	588.57	587.48	588.67	588.97	589.71	589.83
16	c589.75	589.08::	588.48::	586.76	587.17:	589.02	589.78:	589.59	590.68	589.46	588.98	591.32::
17	589.79	591.90	592.16::	590.88:	592.63	592.48:	593.19	593.88	593.86	591.43:	591.62	d592.98
18	591.42	592.99	593.58	592.78	593.24	591.16	591.31	589.08	588.50	590.11	587.61	589.86
19	590.67	591.18	591.41	589.97	586.25	586.90	589.73	590.30	589.28:	590.58	589.34	c588.88
20	591.48	592.64	590.78	590.39:	589.31	588.64	587.45	584.07:	583.81	581.92	582.74	584.37
21	584.44	585.52	584.46	581.82	580.43	579.17	577.70	576.29	575.44	573.17	571.72	e572.37
22	571.78	571.18	570.74	571.37	570.86	*570.93::	566.07:	562.67:	561.40	560.37	560.02	561.45
23	561.72	562.25	561.93	561.29	559.31	561.38	562.63	563.03	563.48	561.99	559.63	f560.03
0	558.43	556.76	555.22	554.06	552.33	549.96	. .	548.29	547.73	546.16	545.24	545.40
1	544.56	543.67	543.64	. .	544.75	544.07	545.16	545.07	546.05	547.32	550.11	554.01
2	555.32	. .	. .	g555.96	555.27	557.17	556.65:	557.90::	558.33	564.31	563.76	565.23
3	565.02	565.12	566.26	567.28	566.06	567.88	†568.88	568.35	567.27	567.00	568.24	568.48
4	569.93	569.87	570.08	571.26	d570.65	570.25	571.86	571.60	571.48	572.59	572.41	570.05::
5	572.85	572.36	572.26	572.63:	571.84	572.02	572.70	573.64	574.80	575.50	575.60	576.14
6	577.08	575.32:	576.41	†576.59:	576.64	575.75	575.12	575.01	574.95	574.71:	574.23	573.74
7	574.13	573.58	573.63	573.71	573.63	573.60	573.81	573.43	573.19	573.61	573.66	h573.64:
8	573.26	575.64	575.75	575.13	574.32	575.67	576.03	576.27	576.73	576.18	575.04	574.92
9	574.98	575.65	576.25	579.91:	581.68	585.02	586.64	586.57	585.63	584.10	584.06	581.82
10	e579.35											

Bemerkungen.

Umstände wie früher.

* Bei 22h. 25m. Wagenstörung. Bei den Beobachtungen 20m., 40m., and 45m. wurde die ins Zimmer scheinende Sonne unbequem, und zeigte sich zugleich eine Abweichung des Standes in dem Sinne dasz ihre Zahlen um 1 mm zu niedrig erschienen, weshalb bei genannten Beobachtungen eine Trennung der Curven nöthig wird. Bei 22h. 40m. wird der Stand wieder berichtigt. † Wagenstörung.

a Seibert. *b* Berkenbusch. *c* Lesser. *d* Süss. *e* Shoenfeld. *f* Gerling. *g* Klinkerfues. *h* Römer.

Zeitbestimmung.

	h. m.	h. m. s.
July 24	3 18 Uhr. Z.	= 3 13 17.57 M. Z.
July 26	5 26	5 21 14.88

AM 30 und 31 AUGUST, 1850.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
10	577.69	577.41	577.71	577.20::	579.81	578.06:	578.12:	578.13	578.58	578.48	579.18	579.33
11	579.93	581.56	581.36	584.01	582.03	582.90	582.49	582.45	582.45	582.95	582.98	a583.50
12	581.53	580.63	578.53	579.67	580.13	581.23	582.58	584.04	582.48:	582.23	582.58	582.08
13	582.92	580.36	572.76	564.89	564.38	565.00	568.43	570.51	573.54	575.27	577.50	b580.13
14	582.44	583.35	583.64	582.17	579.92	576.17	575.41	574.74	574.72	573.40	573.42:	574.00
15	573.62::	573.62	574.46	575.20:	575.62	576.22	575.18	574.29	c573.99	573.87	573.47	574.14
16	574.59	574.96	577.15	578.06	579.39	580.45	583.10::	582.76	581.30:	581.45	581.13	580.34
17	580.47	579.45	581.58	583.01	584.53	584.46	585.52	586.81	587.00	588.36	590.34	591.08
18	593.37	593.04:	d594.70	594.58	594.16	594.37	594.09	596.12	596.34	597.02	598.14	597.43:
19	598.27	598.50	599.95	599.24	599.73	599.05	598.21:	603.38	602.77	601.52	598.50	599.81
20	599.56	600.25	596.88	600.50	600.00	597.40	600.17	597.23	595.00	595.01	594.87:	594.64::
21	593.38	593.13	592.66	592.20:	591.88:	591.25	590.10	589.19	586.38	585.11	584.42	d583.22
22	581.64	579.38	578.38	576.96	575.75	574.71	573.15	572.13	571.34	570.08	569.47	568.08
23	567.29	566.43	563.65	562.54	562.68	561.33:	559.40:	560.05	558.04	556.96	555.19	555.14
0	a553.70:	551.34	550.07	550.43	550.88	549.01	549.55	550.81	548.16	548.28::	548.65::	*547.07::

AM 30 und 31 AUGUST, 1850—Continued.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
1	549.78	551.03	551.01	549.98:	550.94	551.09	550.55	550.98	551.45	552.68	553.70	553.71
2	*e* 555.34	556.64	556.38	560.17	560.33	559.00	557.92	560.33	560.69	561.21	562.73	563.89:
3	565.00	565.54	565.00	565.25	565.17	565.25	566.88	566.43	568.10	567.93	568.88	568.76
4	*d* 570.01	573.32::	571.06::	571.11::	569.59::	571.68::	573.57:	573.08	574.55::	574.36	575.71	575.40::
5	577.42::	579.21:	578.02:	579.07::	577.36::	580.15:	580.36:	580.72:	579.94::	585.28::	*f* 580.67	580.12
6	580.39	580.64	580.42	580.64	580.16	580.37	579.96	579.33	579.89	578.15	578.39	578.67
7	578.63	578.60	578.43	578.98	579.98	580.08	578.89	578.50	579.38	579.43	579.15	*a* 578.92
8	579.15	579.07	579.80	580.12	580.38	580.92	581.68	581.07	581.91	582.68	583.15	583.22
9	583.13	583.57	581.90	580.80	580.00	579.66	580.58	581.83	583.83	585.11	586.03	585.16
10	*g* 585.00											

Bemerkungen.

Umstände wie früher.
* Wagenstörung.

a Shöenfeld. *d* Schmidt. *f* Hoffmeister.
b Lesser. *e* Süss. *g* Klinkerfues.
c Schubert.

Zeitbestimmung.

	h. m.	h. m. s.
August 30	5 2 Uhr. Z.	= 4 57 37.6 M. Z.
August 31	20 45	= 20 40 34.3

AM 18 und 19 SEPTEMBER, 1850.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
10	*a* 578.70:*	580.43:	580.55	582.78	584.28	585.13	585.33	585.30	586.70	588.96	588.31:	586.48
11	585.88	587.35:	588.71	587.41	585.50	584.67	585.18	585.33:	588.00:	588.58:	587.95:	588.72:
12	587.48	586.25	585.09	585.95	580.25	577.34	578.40:	581.37	583.85	585.45	584.43	585.12
13	584.73	582.98	580.98	583.36	583.88	583.11	583.78	585.83	585.24:	588.51:	590.04	591.48
14	591.46	*b* 594.99	597.68	598.95	598.73	598.93	596.13	594.02	591.97	592.00	594.25	596.67
15	599.98	601.18	598.14	595.97	595.21	594.08	591.62	590.68	591.09	590.18	589.88	588.20
16	*c* 587.36:	588.29:	589.77	589.20	589.10	589.73	590.06:	589.93:	588.77	587.33:	587.03	586.15
17	588.92	588.74	589.77	590.34	590.18	589.88:	589.51	588.95	586.73	589.88	590.33:	590.66:
18	591.26	591.24	591.02:	*d* 591.74:	591.04	590.43	590.91:	591.50:	592.73:	593.15:	589.32:	587.72:
19	588.81	589.58	587.05:	587.00	588.25	585.35	590.03:	585.91	586.18	587.12	586.75	586.41
20	*c* 586.09:	589.55	587.62:	589.34:	585.40:	586.59	585.28	585.15	587.02:	584.97	584.29:	582.77
21	583.13	581.38	581.73:	580.53:	579.66	576.83:	574.03	573.50	572.73:	571.37	567.74:	565.34:
22	565.01:	*e* 562.88	561.70:	560.00	560.70:	556.11	565.88	558.09	560.00	559.06	558.10	560.00
23	560.55	560.00	556.06	555.96	552.23	550.00	551.74:	545.70	546.00	547.53	541.20:	557.83
0	*d* 544.87	540.87	† 533.70	534.03:	537.40:	535.78	537.28	540.16	543.00	544.75	547.78:	549.03:
1	550.49:	‡ 548.68:	543.63	545.86	547.88	548.41	547.90	549.24	550.68	552.48	553.98	553.95
2	551.49	552.96	*a* 554.73 §	555.98	556.96	559.38	559.19	558.92	560.13	559.95	560.98	562.53
3	563.85	‖ 563.86:	565.21	564.18	563.34	561.15	562.47	563.27	564.37	564.87	566.07	566.88:
4	*b* 576.58 ¶	577.00	577.28	578.25	578.56	578.65	579.06:	578.34	578.71	579.72	579.07	580.31
5	580.27	581.07	581.30	581.13	580.93	580.95	580.60	580.35	580.38	580.42	581.79	583.23
6	*c* 583.68	584.08:	584.98	586.63	585.32	584.05	583.73	580.43	580.08	579.29	579.38	581.25:
7	580.68	580.18	580.52	579.74	579.47	579.61	580.09	579.98	580.07	580.10	579.78	579.39
8	579.63	579.62	579.38:	579.25	. . .	579.92	. . .	580.67	580.63	580.00	580.19	580.17
9	579.92	579.33	578.81	578.01	578.37	578.48	578.17	579.40	578.08	577.98	577.42	577.61
10	. . .											

Bemerkungen.

Umstände wie früher.
* Stand bei den ersten beiden Beobachtungen etwas unrichtig.
† Stand um 3 Scalentheile corrigirt.
‡ Eine Wagenstörung. § Stand corrigirt.
‖ Wagenstörung. ¶ Der stand um + 8m.7 berichtigt.

a Nicolai. *c* Hoffmeister. *e* Schmidt.
b Schoenfeld. *d* Schubert.

Zeitbestimmung.

	h. m. s.	h. m. s.
18 September	5 5 0 Uhr Z.	= 5 0 17.2 M. Z.
19 September	19 7 0	= 19 2 14.3

AM 23 und 24 OCTOBER, 1850.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
10	581.46	581.26	582.04	582.28	583.26	583.21	582.16	582.33	582.18	582.85	583.17	583.45
11	583.88	584.28	584.92	584.65	585.49	585.55	587.47	587.79	588.07	588.38	588.33	587.47
12	586.74	587.51	588.70	589.92	589.67	587.82	587.96	586.86	587.36	588.72	590.59	591.87
13	593.94	594.47	596.12	597.02	. . .	593.78	591.79	590.29	589.81	587.78	586.90	
14	585.86	584.32	585.87	583.53	575.72	585.33	587.33	588.67	590.42	592.38	592.44	592.08
15	589.85	587.05	585.09	584.60	584.33	584.98	586.81	586.42	588.03	586.36	585.96	584.55
16	583.70	585.95	587.74	581.34	582.26	583.45	581.61	582.03	582.33	583.68	584.03	584.45
17	584.45	585.19	585.63	585.32	586.12	588.17	589.83	589.85	588.23	587.15	586.22	585.58
18	587.37	585.25	585.18	585.52	586.10	585.88	585.23	585.73	587.91	589.78	590.09	590.43
19	591.59	592.10	591.98	591.68	591.25	590.42	590.12	589.90	589.14	589.30	590.00	590.00
20	590.00	590.03	591.73	592.77	592.55	593.13	594.33	594.05	592.70	593.13	594.00	593.13
21	592.25	592.00	590.00	590.00	590.00	592.68	590.00	588.33	583.75	585.00	585.00	584.05
22	581.71	581.41	579.94	578.92	578.13	576.08	574.16	572.26	571.78	571.06	569.25	570.45
23	569.60	569.95	568.53	567.21	566.51	565.63	564.72	564.31	563.73	564.41	563.81	561.96
0	560.09	559.98	559.73	558.79	559.55	562.07	560.04	558.48	559.12	558.83	557.99	558.78
1	558.09	557.47	558.53	559.08	588.38	557.39	556.36	557.13	559.12	559.23	560.03	560.19
2	560.00	560.00	560.00	560.00	560.92	561.00	563.37	565.00	564.00	*555.55	556.09	558.00
3	570.00	†	570.00	570.00	570.00	571.22	572.85	572.70	575.00	575.00	575.00	575.00
4	576.66	577.07	577.31	577.40	577.84	577.50	577.42	577.21	577.08	576.92	577.01	576.87
5	576.13	574.51	574.13	574.95	574.56	574.69	574.82	572.98	574.71	574.52	575.00	575.08
6	574.00	574.77	574.91	574.86	574.24	574.13	573.89	574.47	575.21	575.62	575.66	575.58
7	575.95	576.45	576.79	577.22	577.53	577.57	578.07	578.31	578.37	578.60	578.56	578.68
8	578.74	579.03	578.31	578.74	579.81	579.92	580.61	581.01	581.77	582.28	582.37	582.70
9	582.90	583.08	583.24	583.14	585.20	583.28	583.55	583.80	584.73	584.98	585.00	585.00
10	585.16											

Bemerkungen.

Umstände wie früher.

* Hier fand wahrscheinlich schon die Verrückung statt.

† Fehlt weil eine Verrückung des Dreifusses stattfand vergl. Protocoll.

Zeitbestimmung.

	h. m. s.		h. m. s.
23 October	4 36 0	Uhr Z. =	4 31 34.1 M. Z.
24 October	19 56 0	=	19 51 27.5

AM 29 und 30 NOVEMBER, 1850.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
10	600.63	600.66	600.77	600.04	599.92 :	602.29 :	605.43	606.98 :	609.11 :	607.45	603.79	603.22
11	603.17	603.59	603.28	604.14	605.59	606.58	606.53 :	607.48 :	609.25	611.47	612.05	610.07
12	609.94	a 609.79	608.50	607.73	606.04	605.36	604.96	604.71	602.73	599.12	600.35	600.08
13	600.48	603.69	606.71	606.71	606.74	606.38	606.53	607.34	607.78	606.18	604.68	b 605.88
14	606.08	605.52	604.13	603.39	602.06	602.31	601.64	600.36	601.18	600.14	602.09	603.61
15	605.03	603.44	603.11	604.81	604.48	604.17	604.32	601.53	603.44	602.51	604.78	604.70
16	604.50	605.75	603.17	603.41	604.64 :	606.52	607.44	611.34	610.38	. . .	609.31	613.70
17	612.32	611.30	611.09	612.15	611.79	. . .	611.17	610.08	608.72	606.97	605.21	c 606.71
18	605.12	604.43	603.99	604.28	604.44	604.15	603.38	602.03	599.80	599.37	599.38	600.01
19	601.49	602.00	599.65	599.78	598.86	598.50	598.11	599.33	599.57	602.77	602.50	d 599.54
20	600.00	600.00	600.00	600.00	600.00	602.08	602.65	601.10	600.00	602.01	602.83 ::	605.00
21	605.00	600.00	*595.00	605.00	605.00	605.00	*563.10	600.00	600.00	600.00	600.61	605.00
22	595.00	e 596.00	596.59	595.86	596.09	597.81	592.13	594.96	593.89	592.00	593.93	596.08
23	595.14	592.36	593.42	594.18	590.64	591.28	590.40	588.15	586.85	586.29	586.18	586.60

AM 29 und 30 NOVEMBER, 1850—Continued.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
0	584.33	584.43	a 583.80	578.89	580.04	578.26	579.15	579.71	582.13	583.56	584.95	584.62
1	f 586.84	. . .	586.43	586.44	586.40	585.54	585.12	585.28	585.33	583 83 :	585.15	585 21
2	584.20	583.20	584.66	586.08 :	587.12 :	589.53	590.31	590.02	g 591.15	592.66	597.93	588.20
3	593.58	592.25	596.86	591.63	588.79	588.63	589.30	589.49	591.39	590.90	589.75	591.16
4	594.37	598.01	601.85	598.96 :	600.88	601.58	603.18	603 83	605.78	607.34 ::	610.44 :	616.49
5	625.77	629.58 :	h 627.51 :	623.53	618.92	620.17	624.47	623.54	617.83	612.68	609.78	607.01
6	604.99	604.26	604.72	604 48	605.15	605.88	605 96	607.39	608.19	609.28	611.33	613 55
7	613.35	612.82	612.51	611.37	611.05	612.30	613.22	613.00	612.81	613.08	613.57	613.89
8	613.78	616.70	i 619.48	623.90	626.82	626.17	624.45	. . .	623.00	622.04	620.68	619.08
9	617.06	612.70	609.73	608.67	609.81	609 83	609.96	608 66	607.16	. . .	606.10	606.18
10	c 606.24											

Bemerkungen.

Umstände wie früher.

* Query. † Jedenfalls fehlerhaft.

a Seibert. d Gutmann. g Hoffmeister.
b Berkenbusch. e Schmidt. h Hering.
c Klinkerfues. f Lesser. i Schoenfeld.

Zeitbestimmung.

	h. m.	h. m. s.
29 November	4 2 Uhr Z.	= 3 57 0.0 M. Z.
30 November	20 53	= 20 47 51.2

AM 18 und 19 DECEMBER, 1850.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
10	604.18	603.23	605.39	606.20	605.26	604.42	603.87	604.51	606.26	606.83	607.00	607.16
11	607.73	607.46	607.42	608.34	608.33	608.38	608.28	608.64	608.27	607.70	607.95	608.44
12	608.61	a 608.42	609.46	609.08	609.08	608.94	608.77	609.03	608.69	609.27	609.59	610.00
13	610.13	610.07	609.26	608.88	607.19	607.37	605.52	607.49	606.33	606.08	606.92	607.78
14	609.01	609.88	609.93	b 609.53	. . .	. . .	609.92	610.00	609.70	609.54	609.85	609.71
15	610.00	611.11	613.12	614.16	613.01	612.72	612.47	612.21	611.10	610.54	610.00	609.75
16	610.00	c	566 54	561.04	566.91 :	569.27	561.28	561.39	561.08	561.17	561.23	561.13
17	561.25	561.24	561.23	561.66	560.53	561.23	561.27	560.77	560.77	560.52	560.72	561.17
18	561.09	561 23	d 561.20	. . .	609 24	609.11	609.20	609.35	609.76	609.69	609.70	609.58
19	609.42	608.89	610.87	609.75	609.48	609.83	608.64	612.18	612.45	612.23	611.28	610.53
20	610.40	610.61	610.52	609.92	e 609.65	609.53	609.38	609.44	609.22	608.86	608.63	608.18
21	608.36	608.35	608.20	607.60	607.63	607.13	606.72	606.16	606.13	605.58	605.10	604.79
22	b 604.07	603.29	602.93	602.18	601.50	601.28	600.69	600.67	600.76	600.28	600.13	600.55
23	600.21	600.18	600.05	600.05	599.28	598.94	599.91	600.36	600.67	600.75	600.66	600.79
0	f 600.18*	599.93	600.10	599.83	599.95	600.37	600.33	600.27	600.48	600.74	601.18	601.22
1	601.06	601.35	601.49	601.70	601.86	603.67	602.75	602.65	602.61	601.88	602.34	602.13
2	g 603.10	†										
3												
4	. . .	601.15	601.88	601.87	602.02	602.43	602.77	603.00	603.12	603.62	603.73	
5	603.93	603.98	. . .	603.96	603.90	603.94	603 92	604.00	604.53	604.57	. . .	606.00
6	c 605.99	605.30	606.01	605.98	606.31	608.00	609.21	609.14	608.72	608.14	608.21	608.08
7	608.13	608.43	608.90	609.00	609.00	608.23	607.56	606.44	606.81	607.33	608.52	608 03
8	607.99	607.82	h 607.55	607.86	607.87	608.62	608.97	608.31	608.49	608.43	608.68	608.68
9	608.58	608.60	608.57	608.85	608.80	609.00	609.02	608.80	609.02	609.08	609.00	609.03
10	609.00											

Bemerkungen.

Umstände wie früher.

* Etwas unsicher.

† Wegen Krankheit des Beobachters ausgefallen.

a Seibert. d Hoffmeister. g Schubart.
b Lesser. e Schmidt. h Schoenfeld.
c Klinkerfues. f Hering.

Zeitbestimmung.

	h. m.	h. m. s.
18 December . . .	3 57 Uhr Z.	= 3 50 47.3 M. Z.
20 December . . .	5 59	= 5 53 37.1

AM 22 und 23 JANUAR, 1851.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
10	622.30	622.00	624.51:	623.89	623.56	622.90:	623.00	623.11	623.43	622.56	621.38	620.55
11	621.67	622.34	621.73	622.56	623.00	623.81:	624.23:	625.68	625.20	625 41	626.36	627.93
12	628.29	629.08	629.23	627.61	626.41	626.55	625.58	620.79::	615.68:	616.14:	617.28	619.82
13	619.43	616.94	616.73	621.48	626.68	629.96	632.26:	632.26	634.20	635.75	634.38	633.79
14	630.53	*a* 628.90	628.43	628.98	628.07	628.08	628.39	627.78:	626.60	627.23	626.93	625.98
15	623.98	623.97	625.38	625.55	625.48	624.97	623.94	624.17	624.53	624.63	623.68	621.61
16	620.17	620 98	619.92	*b* 619.71	619.68	622.17	627.43	627.12	626.10	627.12	627.08	626.94
17	625.13	625 23	624.02	622.58	622.68	622.00	621.93	621.54	620.26	619.00	620.32	619.80
18	618.00	*c* 618.38	618.52:	617.97:	616.34:	614.97:	614.50	614.36	614 84	615.65	616.25	615.62
19	614.56	614.27	614.36	613.60	614.30	614.80	614.45	614.87	614.84	615.72	615.28	615.14
20	615.60	615.05	615.19	*d* 615.97	*	651.06	650.32	650.02	649.90	649.24	648.35	647.57
21	647.33	647.36	645.43	644.67	644.71	643.90	643.70	643.59	642.23	641.73	641.98	*b* 642.53
22	644.23	643.45	641.29	640.41	639.43	637.07	636.13	635.71	634.31	633.32	633.77	637.02
23	639.44	641.50	641.00	641.02	639.82	638.63	638.16	637.43	638.33	638.40	638.56	639.11
0	635.93	632.88	630.21	630.64	625.31	622.83	621 97	623.03	624.88	624.82	625.09	623 43
1	624.43	624.04	625.27	622.21	623.03	621.66	622.10	621.79	620.22	*e* 620.22	. . .	617.93
2	617.56	617 69	616.31	615.71	617.72	619.39	620 39	624.29	628.11	628.46	630.32	631.46
3	631.69	633.08	633.92	633.65	632.25	632.63	632 40	631.69	631.86	634.06	633.48	634.97
4	632.41†	633.48	632.40	632.09	†	635.78	636.88	636.25	633 84	633.44	632.80	632.36
5	632.56	633.18	633.76	636.35	638.08	641.50	645.58	647.95	648.81	648.03	647.18	*f* 646.44
6	650.07	653.31	653.66	654.63	655.45	652.64	649.98	649.37	651.01	652.28	651.55	653.43
7	653.54	653.48	654.08	652.57	657.89	657.39	658.03	651.42	647.78	649.42	646.76	644.75
8	*g* 643.33	647.75	649.48	644.41	642.11	642.88	643.73	643.78	642.63	642.84	643.10	643.87
9	643.99	644.36	644.58	644.08	643.48	643.09	643.02	642.78	642.03	642.08	643.30	645.44
10	*h* 647.08											

Bemerkungen.

Umstände wie früher.

* Hier scheint ein starker Irrthum obzuwalten. Wahrscheinlich wurde das Rohr verrückt und ist corrigirt worden, obgleich nichts in den betreffenden Protocollen aufzufinden ist.

† Wagenstörung. Stand berichtigt. Die Vorhergehenden Beobachtungen müssen um 4*m*. vermehrt werden.

a Nicolai. *b* Lesser. *c* Berkenbusch. *d* Schmidt. *e* Hoffmeister. *f* Seibert. *g* Gutmann. *h* Schoenfeld.

Zeitbestimmung.

	h. m.		h. m. s.	
22 Januar	5 58	Uhr Z. =	5 52 31.0	M. Z.
23 Januar	23 4	=	22 58 24.0	

AM 21 und 22 FEBRUAR, 1851.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
10	649.18	648.55	648.38	648.96	648.90	649.18	649.87	650.04	649.52	649.23	649.46	649.84
11	649.93	650.11	649.94	650.43	650.50	650.32	650.45	650.76	651.02	650.23	650.60	650.48
12	*a* 650.68	650.84	651.13	650.98	651.01	651.00	650.95	651.14	651.12	651.08	651.17	651.05
13	651.08	650.99	651.03	651.10	651.03	650.98	651.13	651.38	651.60	651.12	651.05	651.09
14	651.42	651.53	651.20	651.08	651.27	651.21	651.20	651.29	651.33	651.68	651.53	651.64
15	651.79	651.48	651.48	651.36	651.32	651.00	651.21	651.12	651.07	651.31	651.01	651.14
16	651.10	651.16	651.17	650.56	650.83	*b* 651.54	650.05	650 21	650.41	650.23	650 03	650.00
17	650.13	650.13	650.00	650.18	650.12	650.57	650.17	650.20	650.38	650.45	650.00	650.57
18	650.37	651.05	650.70	650.25	650.00	. . .	652.54	651.86	651.93	652.01	652.71	653.22
19	653.25	653.81	654 96	654.69	654.26	655.98	. . .	*c* 655.73	655.23	656.60	656.10	656.83
20	. . .	657.03	657.40	659.16	658.73	658.03	657.84	656.01	655.78	655.13	655.05	655.78
21	653.83	654.75	655.10	653.46	652.84	652.69	651.89	649.90	648.63	646.96	646.92	646.73
22	644.23	642.40	640.70	*d* 643.03	636.18	633.21	627.69	626.28	624.08	622.83	622.18	619.66
23	618.38	619.76	619.53	620.00	621.98	623.68	622.51	624.07	633.13	623.80	628.06	625.53
0	624.52	623.21	622.29	*e* 621.57	622.33	622.53	622.97	622.24	620.21	618.33	619.17	618.75
1	619.17	623.83	624.18	625.17	626.43	627.25	629.15	629.35	629.71	628.30	629.47	632.72

AM 21 und 22 FEBRUAR, 1851—Continued.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
2	633.88	c 634.10	632 02	630.03	630.00	630.00	631.01	635.08	635.10	646.00	646.00	646.00
3	646.00	646.00	645.00	646.10	646.10	640.02	640.00	640.00	640.00	640.00	640.00	640.00
4	640.00	644.07	642.02	644.00	642.38	645.00	645.00	645.00	645.00	645.00	645.00	646.00
5	646.00	646.00	650.00	645.00	646.08	645.00	645.00	645.00	644.08	644.01	640.11	644.03
6	640.39	641.31	643.07	f 645.30	644.82	645.15	644.50	645.30	645.50	644.35	645.07	646.55
7	646.06	646.27	645.90	646.83	647.39	647.22	647.60	647.21	646.00	646.93	647.23	648.55
8	649.05	649.42	650.05	g 650.77	650.64	650.50	651.06	651.54	653 68	656.58	658.59	659.14
9	661.56	660.03	. . .	655.53	654.60	. . .	652.62	652.25	652.31	650.93	650.31	d 650.41
10	. . .											

Bemerkungen.

Umstände wie früher.

a Schubart. b Lesser. c Hoffmeister. d Klinkerfues. e Seibert. f Schmidt. g Berkenbusch.

Zeitbestimmung.

	h. m.	h. m. s.
21 Februar	3 53 Uhr Z.	= 3 47 42 6 M. Z.
22 Februar	20 22	= 20 16 31.6

AM 19 und 20 MAERZ, 1851.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
10	646.87	646.93	647.95	647.01	647.09	647.00	647.38	647.93	647.79	647.55	647.95	648.05
11	648.18	648.22	648.25	648.52	648.65	648.68	648.59	648.58	648.70	648.93	649.08	a 649.33
12	648.97	648 85	648.95	649.32	649.73	649.27	649.55	649.07	649.65	650.13	649.42	649.70
13	650.02	649.87	649.08	649.17	649.55	649.52	649.98	649.95	650.15	650.57	650.37	b 649.90
14	649.79	650.53	650.43	650.36	650.43	650.62	650.62	647.97	649.68	650.90	650.45	650.97
15	651.12	650.59	650.20	650.65	651.02	650.99	650.48	650.45	650.85	649.81	649.83	650.34
16	650.49	650.45	650.52	650.48	650.61	650.18	649.43	650.25	650.91	651.02	650.10	649.83
17	649.78	649.59	650.39	649.89	650.98	651.59	651.75	651.16	650.36	650.62	650.95	651.13
18	652.09	652.24	a 652.58	654.16	654.65	654.46	654.24	655.05	654.39	654.23	655.16	655.12
19	655.00	655.32	655.07	657.38:	656.14	658.20	657.37	658.43	659.68	661.33	662.81	661.18
20	661.46	660.00	c 665.87	666.25	664.93	665.09	664.87	664.23	665.33	665.84	666.53	666.38
21	664.18	665.49	664.45	663.74	663.93	662.48	661.03	660.22	659.92	658.49	658.54	657.63
22	655.55	654.51	652.67	d 651.48	651.23	650.26	650.00	646.14	646.12	643.48	642.33	640.17
23	640.21	635.46	635.11	636.72	635.26	634.61	635.37	633.33	635.38	633.30	630.25	629.33
0	629.40	627.46	c 627.61	627.19	625.68	627.34	621.02	618.26	619.98	620.83	621.38:	619.65:
1	620.47:	619.14	620.28	620.54:	622.71	618.81:	617.68	616.52:	621.15	622.38	620.72:	620.85
2	621.37	e 620.18	620.00	620.00	620.00	620.00	620.00	621.04	620.00	620.00	620.00	620.00
3	623.00	622.04	620.00	616.46	615.00	615.00	615.00	620.00	620.00	620.00	620.00	f 625.00
4	622.26	623.97	623.73	623.81	626.14	625.61	625.92:	627.18::	628.97	630.33	630.38	630.91
5	630.68	630.77	629.26:	629.75:	628.91	628.33	628.11	627.13	625.91	626.74	626.33:	627.55:
6	621.92::	g 628.00:	631.50	632.92	633.00	* 635.58	636.17	636.62	637.17	638.00	639.67	640.08
7	640.00	641.67	642.00	643.38	646.75	652.25	646.92	644.75	643.00	644.08	646.21	h 648.13
8	653.11	656.17	654.99	653.02	650.06	647.97	645.28	644.77	644.45	644.10	644.59	645.02
9	646.79	646.19	646.38	646.38	648.19	647.43	647.97	648.53	649.04	649.00	648.73	649.51
10	d 650.22											

Bemerkungen.

Umstände wie früher.

* Wagenstörung. Wegen momentaner augenschwäche konnte der Beobachter mit gutem Gewissen keine 0.1 mehr ablesen so dass erst am Ende der Reihe genaue oscillationsbestimmungen eintraten.

a Schoenfeld. b Berkenbusch. c Hoffmeister. d Lesser. e Schubart. f Schmidt. g Hering. h Römer.

Zeitbestimmung.

	h. m.	h. m. s.
18 Maerz	23 31 Uhr Z.	= 23 26 18.1 M. Z.
20 Maerz	19 48	= 19 43 13.2

AM 23 und 24 APRIL, 1851.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
10	669.96	669.36	664.42	662.93	666.56	673.29	676.81	677.12	678.53	678.03	677.89	677.11
11	677.20	677.34	676.65	676.56	676.99	674.18	670.09	668.78	668.34	668.23	667.82	665.08
12	662.75	*a* 662.69	663.42	662.17	660.25	658.50	658.51	658.33	659.23	660.32	660.29	663.47:
13	663.46	653.40	655.52	653.30	649.42	646.36	649.42	650.29	652.25	655.29	650.03	654.40
14	654.41	655.11	657.21	659.44	659.52	659.17	*b* 659.54					
15	666.98	668.32	667.28	665.78	666.03	665.33	667.27	669.97	674.88	676.28	677.56	677.32
16	677.44	676.93	675.76	671.75	669.93	670.10	670.23	671.35	670.36	669.63	667.05	668.88
17	672.09	671.97	672.83	674.10	673.93	672.97	671.80	674.63	673.93	672.24	672.78	*c* 678.78
18	681.69	676.02	671.51	669.38	668.33	669.05	671.60	673.33	671.28	670.21	671.48:	675.52
19	673.79	672.29	672.53::	669.53::	673.93	674.34:	675.40	675.34:	677.28::	682.28::	683.43:	682.23:
20	680.06	*d* 675.94	672.76	671.19	670.87	670.61	672.60	671.55	669.44	672.01	669.64	668.13
21	669.04	668.75	668.75:	670.73	668.09	666.43	666.11	664.69	663.59	664.60	663.66	663.53
22	663.07	662.18	659.93	658.37	667.15	666.53	656.25	650.17	645.18	645.12	640.22	640.17
23	640.19	640.13	643.83	640.14	644.27	640.17	640.13	638.93	648.28	633.21	634.30	634.23
0	630 39	*e* 630.58	628.18	628.83	628 46	628.49	627.90	628.20	624.95	* 620.73	622.21	623.51
1	624.73	625.42	627.97	629.52	629.20	631.65	633.56	634.13	632.20	630.60	631.57	632.84
2	634.65	636.85	638.80	640.58	640.14	640.19	639.24	635.23	638.10	639.36	638.18	*f* 635.67
3	640.14	644.18	647.49	649.19	650.42	649.36	650.67	650.33	651.13	651.10	650.48	651.57
4	650.34	650.18	651.40	*e* 650.58	650.64	650.00	650.06	649.90	650.77	651.88	652.30	653.11
5	654.78	. . .	656.00	654.85	654.65	656.12	655.51	656.25	658.85	660.33	. . .	663.68
6	*g* 663.83	664.69	666.29	670.79	676.04	683.06	681.97	673.65	665.65	662.38	659.95	659.30
7	659.30 *	661.25	665.41	664.73	665.12	666.10	666.03	663.54	665.93	666.68	666.57	665.64
8	665.91	664.99	*f* 664.69	664.69	665.98	667.98	669.33	668.33	669.37	. . .	678.47	672.27
9	674.36	670.57	665.40	662.78	662.73	661.87	662.34	662.02	662.95	664.96	664.99	664.84
10	664.63											

Bemerkungen.

Umstände wie früher.

* There are references but no notes in the margin of the MS. sent me. J. M. G.

a Seibert. *b* Hoffmeister. *c* Schubart. *d* Hering. *e* Schmidt. *f* Nicolai. *g* Klinkerfues.

Zeitbestimmung.

	h. m.	h. m. s.
23 April	4 25 Uhr. Z.	= 4 18 43.6 M. Z.
24 April	19 51	= 19 44 38.0

AM 30 und 31 MAI, 1851.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
10	*a* 651.75	652.15	652.59	652.58	653.05	653.91	652.73	653.32	652.76	653.01	653.07	652.96
11	653.73	653.83	652.97	652.87	652.38	652.22	652.40	653.03	654.39	652.98	654.43	653.85
12	654.28	654.68	*b* 655.22	654.90	655.07	654.82	654.88	655.20	655.83	656.07	655.41	655.35
13	656.23	655 40	654.73	655.04	655.61	655.10	654.36	654.45	654.63	654.34	654.54	654.88
14	*c* 655.58	654.70	655.48	655.14	654.65	654.13	654.45	655.05	655.60	656.35	656.57	656.63
15	657.08	655.98	655.82	656.73	655.95	655.13	654.94	655.46	656.03	656.22	656.04	655.52
16	654.39	654.58	654.28	*d* 653.28	653.29	653.50	655.33	655.35	656.25	658.13	659.39	660.36
17	662.27	663.24	655.13	663.42	664.13	663.11	665.18	667.26	668.50	668.19	668.17	668.09
18	668.50	669 31	669.63	670.57	. . .	*e* 672.33	671.90	671.73	672.38	670.15	671.00	671.89
19	672.00	672.00	672.00	672.83	672.16	672.78	672.98	673.03	674.01	674.36	675.93	676.23
20	676.05:	*f* 675.23	674.88	674 85	674.10	674.58	673.77	674.07	673.84	672.53	* 667.73:	* 669.29:
21	667.71:	666.69	666.66	666 87	666.82	666.67	665.72	665.10	664.74	663.68	663.19	662.00
22	660.61	*g* 659.84	658.81	657.29	655.76	654.37	652.29	651.22	655.29	654.57	653.27	646.60
23	644.44	642.37	639.25	636.78	634.42	631.19	627.48	635.83	623.94	620.78	619.73	617.10
0	616.33	615.38	615.55	615.33	615.41	614.77	614.43	614.53	613.65	614.58	614.93	615.39
1	615.34	615.77	615.97	616.00	615.94	616.39	616.53	616.63	616.75	616.88	617.83	618.68
2	619.13	619.79	619.67	*h* 620.43	622.25	620.37	624.22	623.23	624.17	625.18	628.13	628.26
3	629.30	626.05	622.24	622.14	625.14	625.19	624.13	625.32	628.15	638.34	640.10	640.45

AM 30 und 31 MAY, 1851—Continued.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
4	645.10	645.08	645.03	*i* 645.53	646.39	646.35	648.51	649.21	649.40	650.37	650.14	650.89
5	650.76	651.47	652.47	653.35	654.26	654.76	657.13	658.35	660.77	661.09	661.41	661.64
6	660.94	660.34	659.66	*j* 659.48	658.81	658.88	658.33	658.17	657.47	657.29	656.53	656.06
7	656.23	655.82	655.98	655.36	654.66	654.40	654.43	653.98	653.90	654.39	654.14	654.63
8	653.65	653.72	*k* 656.98	*k* 654.40 †	653.78	654.18	653.77	652.60	652.40	651.85	651.90	651.18
9	651.37	652.00	652.17	652.07	652.00	652.18	651.75	651.45	651.62	651.75	651.63	651.22
10	. . .											

Bemerkungen.

Umstände wie früher.
* Wagenstörung.
† Stand um ½ Schraubendrehung im entgegengesetzten Sinne wie bei einer Uhr corrigirt.

a Grebe. *b* Schubart. *c* Schoenfeld. *d* Hoffmeister. *e* Süss. *f* Römer. *g* Lesser. *h* Schmidt. *i* Nicolai. *j* Becker. *k* Berkenbusch.

Zeitbestimmung.

	h. m.		h. m. s.	
30 Mai	5 44	Uhr Z. =	5 39 19.0	M. Z.
31 Mai	19 49	=	20 44 13.0	

AM 18 und 19 JUNI, 1851.

Göttinger Zeit.	0 m.	5 m	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
10	643.47	643.72	643.78	644.65	645.29	645.31	644.83	645.20	644.90	644.77	644.18	644.34
11	643.48	643.20	643.78	644.90	644.54	643.73	643.43	644.01	644.56	654.66	644.80	643.29
12	640.55	640.40	639.62	*a* 639.81	645.30	642.32	645.38	647.92	648.29	649.24	647.31	648.27
13	648.15	646.07	645.19	648.24	647.19	648.40	649.19	649.00	650.00	651.27	653.47	655.22
14	653.08	654.22	654.18	*b* 654.40	652.38	652.91	653.69	654.21	654.34	654.01	654.73	653.89
15	654.46	654.67	655 50	657.13	656.87	656.82	657.30	656.15	656.88	656.88	657.33	*c* 657.56
16	656.88	657.21	657.53	657.51	656.66	656.94	658.03	658.17	659.13	660.00	659.78	661.20
17	662.71	662.41	664.60	661.08	663.39	664.64	664.85	664.72	664.90	664.53	664.86	*d* 664.88
18	664.64	665.83	665.80	665.98	665.78	* 667.14:	666.54	664.08	664.31	663.84	664.44	663.36
19	665.30	664.95	664.79:	665.23	664.23	663.53	663.78	661.95	† 661.99::	662.11	662.39	662.05
20	*e* 661.58	660.08	660.08	660.13	660.37	660.68	660.08	660.09	660.08	660.33	660.27	660.11
21	656.23	657.38	655.11	656.12	650.34	647.26	645.29	650.27	650.28	648.30	645.13	646.18
22	646.10	*f* 645.14	639.03::	‡ 643.36	642.43	642.82	640.42	639.83	. . .	639.14	638.46	637.98
23	636.78	634.78	631.73	629.55	627.53	625.15	624.91	623.90	623.17	623.18	622.35	623.47
0	622.53	622.46	621.83	621.38	619.76	619.80	617.85	618.22	617.71	617.57	617.95	617.76
1	*g* 617.27	620.23	621.34	622.22	622.45	625.13	625.12	625.96	626.20	626.43	628.26	629.15
2	*b* 627.28	630.19	630.10	630.18	630.34	630.09	630.12	630.33	630.25	631.40	630.08	631.12
3	633.17	634.19	633.53	635.16	633.15	633.22	635.23	635.10	634.20	633.96	635.23	636.38
4	635.22	638.68	639.78	640.81	641.44	642.02	642.82	643.02	643.78	644.17	644.16	644.61
5	644.40	645.40	645.37	645.84	645.39	645.90	645.02	644.34	644.01	644.01	644.41	644.62
6	644.95	*e* 645.36	645.08	644.70	644.12	644.45	644.82	645.18	644.98	644.77	644.23	643.81
7	644.60	645.02	644.38	643.66	644.04	644.40	644.70	645.22	645.45	645.08	645.07	*a* 645.07
8	645.07	644.59	644.22	644.38	644.46	644.41	644.28	644.28	644.27	644.65	644.26	643.92
9	644.49	644.79	644.69	645.03	645.53	645.52	645.29	645.27	644.91	644.95	644.98	645.03
10	*c* 645.04											

Bemerkungen.

Umstände wie früher. * Bei 18h. 25m. Wagenstörung.
† Bei 19h. 40m. Wagenstörung.
‡ Bei 22h. 15m. Störung durch Wagen.

a Schubart. *b* Hoffmeister. *c* Lesser. *d* Hering. *e* Schoenfeld. *f* Schmidt. *g* Seibert.

Zeitbestimmung.

	h. m.		h. m. s.	
18 Juni	4 5	Uhr Z. =	4 0 25.6	M. Z.
19 Juni	19 21	=	19 16 13.5	

AM 23 und 24 JULI, 1851.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
10	a 647.29	647.33	647.05	646.92	646.03	645.78	645.42:	645.21	644.99	645.74	645.33	644.82
11	644.51	644.33	643.68	643.05	642.57	642.18	641.98	641.15	640.83	640.77	640.73	640.72
12	b 642.33	640.22	639.12	639.97	640.98	641.81	642.65	643.53	644.08	645.13	646.15	645.48
13	643.43	642.84	642.58	643.28	645.03	645.65	646.59	646.16	648.43	648.01	647.02	646.51
14	647.99	649.56	650.27	652.73	c 655.19 *	655.08	655.19	655.25	655.31	655.17	655.26	650.35
15	650.35	650.33	650.00	650.32	650.00	650.00	650.35	650.29	650.38	650.00	650.33	650.50
16	† 650.30	d 651.00 ‡	651.16	651.78	652.05	651.80	652.88	653.06	652.94	653.52	654.51	654.61
17	655.06	655.23	655.71	656.87	657.08	§ 657.42::	657.11	657.55	657.16	657.07	657.08	657.15
18	657.38	e 656.86	657.13	658.49	657.84	657.19	657.51	658.55	658.68	659.85	657.62	658.83
19	658.01	656.07 ¶	656.22	656.73	657.61:	657.64:	657.73	657.40	658.04	658.13	658.78	658.92
20	f 658.25	657.22	656.82	657.60	658.04	658.25	657.48	657.83	658.03	658.01	657.73	657.01
21	655.79	654.52	652.48	651.14	651.08	§ 648.05:	646.33	645.83	644.56	643.78	643.46	642.23
22	641.27	640.54	639.12	638.48	637.73	637.32	636.94	636.13	‖ 633.99::	633.29	632.27	632.02
23	630.96	629.17	628.46	626.93	625.93	625.52	624.36	622.27	621.67	621.19	620.86	¶ 620.18:
0	618.96	c 619.18**	620.29	616.26:	618.45	616.68:	618.27	610.45	605.18	612.48	610.36	604.41
1	606.31	606.38	607.98	609.37	613.38	615.40	615.37	616.40	616.38	618.43	618.19	616.41
2	617.30	618.23	620.43	620.00	†† 620.00	g 624.53	626.23	625.18	626.07	630.11	633.28	634.23
3	635.32	635.25	636.33	636.14	637.27	637.13	637.29	638.16	639.38	640.30	640.52	642.38
4	640.39	640.94	h 641.28	642.14	643.09	644.20	644.25	645.43	646.45	646.88	646.63	646.64
5	646.77	648.38	648.64:	649.11	649.68	650.18	650.82	651.18	650.70	650.40	§ 653.43:	653.40
6	a 653.01	652.62	654.73	651.00	649.34	648.37	648.03	647.82	647.03	646.38	645.89	645.55
7	644.83	644.13	643.72	643.06	643.28	643.18	642.96	642.58	640.98	642.59	643.31	643.72
8	644.08	643.08	643.43	i 643.42	644.60	645.03	643.87	644.23	644.80	645.77	647.34	646.50
9	644.37	643.97	643.65	642.03	641.92	641.68	643.43	643.17	642.13	642.65	644.50	644.22
10	643.65											

Bemerkungen.

Umstände wie früher.

* Der Beobachter scheint im Protocoll alle Data 5*m*. zu früh angesetzt zu haben.

† Es ist am Ende des Protocols nicht angegeben ob der Stand richtig war.

‡ Auch hier scheinen alle Data 5*m*. zu früh angesetzt zu sein.

§ Störung, vergl. Protocoll.

‖ Unvollständige, gestörte Beobachtung. Vergl. Protocoll.

¶ Unbedeutende Störung vergl. Protocoll.

** Es gilt dasselbe wie oben bei 14h. 10*m*.

†† Es ist am Ende des Protocolls nicht angegeben ob der Stand richtig war.

a Lesser. *b* Hering. *c* Hoffmeister. *d* Schubart. *e* Grebe. *f* Shoenfeld. *g* Schmidt. *h* Nicolai. *i* Berkenbusch.

Zeitbestimmung.

	h. m.		h. m. s.	
23 Juli	3 49	Uhr Z. =	3 44 16.0	M. Z.
24 Juli	18 39	=	18 34 5.9	

AM 29 und 30 AUGUST, 1851.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
10	a	641.23	643.71	648.75:	652.48	658.22:	659.22	663.32:	. . .	681.19	683.82	b 681.44:
11	664.25:	652.38	648.73	646.53	647.94	645.66	642.88	639.19:	639.52	626.44	621.37	617.38:
12	618.78	619.83	625.78	634.13	641.97	650.96	659.54	663.78	666.93	665.53	666.03	665.25
13	666.83:	665.10	665.99	668.35	667.12	664.92	663.17	661.74	658.05	653.10	651.96	645.03
14	640.30	637.93	634.56	634.35	635.12	632.38	c 629.19	630.45	630.40	630.32	631.30	631.36
15	635.30	636.32	638.98	640.43	640.47	645.94	646.37	645.27	650 35	645.26	645.39	640.43
16	d 634.49	636.38	639.53	639.63	637.76	639.10	640.03	641.98	642.88	646.98	648.96	652.18
17	657.13	658.95	658.00	656.55	657.40	656.59	652.79	654.00	656.73	655.48	657.84	* 658.80
18	e 661.08	661.71	654.09:	655.10:	654.20:	655.17:	657.21	656.12	657.75:	659.32:	657.35:	658.72:
19	658.19:	654.14	655.92:	. . .	656.71	*656.25:						
20	. . .	f 654.67 †	656.43	656.16	648.78:	655.55	651.58	652.97	651.13	651.13	650.01	648.12
21	649.48	649.14	649.26	648.39	646.51	645.27	645.03	645.23::	645.33	643.33	641.55	637.77
22	g 633.79:	632.58	633.86	630.73	626.57	627.01:	623.87	624.43	622.56	620.97:	620.18	620.13
23	619.83	622.16:	622.96	624.27	624.62	623.38	622.64	623.26	622.53:	622.53	620.78:	619.38

AM 29 und 30 AUGUST, 1851—Continued.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
0	*d*618.02	616.72	613.39	614.77	616.46	612.64	610.52	609.93	608.78	609.03	609.99	612.93
1	612.52	611.73	611.06	610.73	610.67	608.92	605.77	606.65	608.24	610.12	711.48	613.08
2	613.63	*g*611.70	610.93	612.60	‡614 08:	614.10	614.20	‖615.78	619.07	617.53	618.08	619.09
3	618.58	617.97:	619.10	619.60	620.90	621.13	622.68	624.03	624.28	624.66	625.89	625.67
4	*d*626.33	627.24:	629.82	630.89	632.75:	634.46	634.26	634.29	633.66	634.28	634.28	634.06
5	633.23	632.98	632.32	632.00	630.93	630.84	630.38:	632.27	§634.55::	638.07	640.87	641.29
6	*f*641.23	651.02	660.40	648.51:	665.25	670.33	666.24	669.88	685.36	691.93	689.39:	679.59
7	669.63	663.97:	662.22	662.44	660.77	659.96	658.74	654.97	651.53:	648.28	646.13	644.88
8	645.03	*b*644.47	643 18	645.93	647.02	649.56	649.63	649.65	650.68	650.89	650.90	648.80
9	647.81	646.35	646.59	646.40	645.63	645.67	644.93	644.93	643.17	641.78	639.46	636.95
10	637.38											

Bemerkungen.

Umstände wie früher.

* Stand noch richtig. † Stand um 2*m.* erhöht.

‡ In der Zwischenzeit beider Beobachtungen Störung.

‖ Desgl. § Störung durch Soldaten.

a Grebe. *d* Hering. *f* Lesser.

b Schubart. *e* Süss. *g* Schoenfeld.

c Hoffmeister.

Zeitbestimmung.

	h. m.	h. m. s.
29 August	3 35 Uhr Z.	= 3 30 21.0 M. Z.
30 August	18 13	= 18 8 9.4

AM 24 und 25 SEPTEMBER, 1851.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
10	655.99	656.78	655.45	653.73	653.03	653.18	653.18	652.83	651.79	650.74	644.30	642.15
11	641.61::	636.01:	636.93	640.63	644.49::	636.79	634.41:	635.40	640.71::	645.89	648.93	*a*648.78
12	648.22	648.08	649.79	651.33	651.93	652.85	654.86	657.18	658.14	659.19	658.12	658.14
13	655.08	655.00	655.80	655.37	653.87	653.14	651.78	652.78	653.83	653.81	654.13	*b*653.17
14	651.93	651.83	651.61	650.95	650.41	651.25	651.90	651.93	651.93	652.05	652.05	652.50
15	652.71	653.45	653.51	653.51	655.06	654.79	654.93	655.17	655.20	655.37	654.92	652.56
16	653.49	653.23	652.94	652.67	651.54	651.51	652.18	653.78	653.85	653.25	652.38	652.01
17	651.85	652.24	651.74	651.76	651.59	651.80	652.23	652.09	651.49	651.97	652.72	652.43
18	652.87	654.26	654.53	*c*654.73	656.10	656.35	656.23	655.50	655.41	656.07	656.64	656.79
19	657.08	657.08	657.94	656.79	658.33	657.94	661.21	660.22	658.16	661 01	660.57	*d*661.27
20	661.62	662.25	661.14	661.53	661.18	661.58	661.78	661.56	661.84	661.66	661.05	660.62
21	660.21	659.79	659.19	658.98	658.23	657.43	656.90	656.24	655.72	655.19	653.59	*a*652.93
22	652.59	653.35	650.55	649.71	650.28	650.09	650.13	648.41	648.61	648.13	645.73	645.10
23	645.15	644.37	644.14	643.42	641.32	641.10	641.23	640.32	638.66	638.09	636.29	635.43
0	*e*635.08	634.87	633.73	632.41	631.92	631.33	630.78	630.05	629.69	629.23	628.18	628.45
1	628.94	629.03	629.55	629.60	627.92	627.26	626.72	626.83	629.03	630.23	630.65	630.59
2	630.05	631.39	*b*631.48	633.04	633.30	632.53	632.24	635.35	639.35	635.28	635.28	634.38
3	635.33	635.35	634.27	638.46	637.29	638.32	638.08	638 25	637.21	640.26	642.35	*e*642.95
4	643.21	643.55	643.99	644.60	644.71	644.93	644.95	644.61	644.57	644.63	644.74	645.38
5	646 72	646.52:	646.97	646.28	647.52	647.82	647.28	*646.24::	647.24	647.34	647.13	*a*649.03
6	‡649.24::	648.31	647.56	647.13	647.18	647.68	†648.80::	648.50:	647.57:	647.64	649.78	650.00
7	648.33	647.76	647.67	647.20	647.33	646.84	646.08	646.36	647.08	647.50	647.46	648.17
8	648.45	648.75	648.00	647.73	*b*648.48	655.23	650.47	649.41	650.36	650.00	650.45	650.30
9	650.00	650.49	650.36	651.34	651.00	651.54	652.00	651.40	651.46	652.33	653.36	651.00
10	*f*655.06											

Bemerkungen.

Umstände wie früher. * 5*h.* 35*m.* Wagenstörung.

† Von 6*h.* 30*m.*—6*h.* 40*m.* ebenfalls Störung durch Wagen.

‡ Wagenstörung.

a Gerling. *c* Hering. *e* Schmidt.

b Schubart. *d* Seibert. *f* Hoffmeister.

Zeitbestimmung.

	h. m.	h. m. s.
24 September	3 44 Uhr Z.	= 3 39 31.3 M. Z.
25 September	18 18	= 18 13 19.9

AM 22 und 23 OCTOBER, 1851.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
10	662.23	661.95	662.08	662.64	662.83	662.43	661.43	660.13	659.81	660.29	660.32	661.09
11	660.12	658.52	657.65	657.08	598.92	661.89	663.98	665.39	667.72	666.92	667.08	664.68
12	664.93	663.30	662.66	662.12	659.22:	659.05:	661.19:	664.38	663.50	663.79	662.75	661.61
13	660.23	*a* 661.93	663.42	665.22	665.82	664.92	663.93	663.11:	660.81	660.62	659.74	655.29
14	649.94	647.99	*b* 649.24	651.59	651.59	651.91	654.52	656.03	655.27	654.76	654.60	655.11
15	655.37	655.30	653.96	651.91	651.30	651.08	651.09	651.56	651.41	651.52	651.73	651.13
16	651.05	*c* 651.29	652.13	652.28	652.11	651.60	651.67	650.15	655.44	654.94	654.91	654.45
17	656.02	654.93	654.98	654.98	657.07	658.60	658.46	658.84	658.79	658.10	656.37	654.70
18	653.10	654.77	655.14	*d* 655.15	656.28	657.83	659.37	657.09	657.52	658.26	657.28	660.44
19	663.20	664.20	663 22	663.17	664.33	663.31	662.13	665.15	667.29	664.40	660.47	662.53
20	664.93	*e* 661.13::	664.67::	662.67::	663.67:	664.62:	664.52:	665 83	666.20	665.78::	670.48::	666.91::
21	666.94	668.54	667.68	668.53:	664.73	663.38::	. . .	662.06:	. . .	660.68	660.58	661.33
22	658.57	657.26:	*a* 659.78::	652.28::	656.92	650.96	648.16::	648.05	646.68	644.23	643.03	642.74
23	639.40:	637.52	637.69	637.12	635.57:	633.96	630.18::	633.70	630.12::	626.48	625.46	620.53
0	617.67	618.07	621.45	*f* 619.61	620.21	620.39	620.12::	622.98	616.41:	617.42:	620.27::	624.48:
1	627.66	628.70	625.22::	623.65	621.48	623.16	624.69	624.31	619.58:	624.89:	625.63	*d* 626.75
2	626.27	627.36	628.11	626.13	625.18	625.11	626.20	625.25	625.22	624.16	624.14	626.38
3	630.16	630.30	638.17	640.14	640.33	641.29	640.18	640.11	640.10	640.14	641.40	*e* 643.26
4	642.45	644.73	644.32	643.81	646.33	650.71	657.28	658.16	660.13	657.68	657.48	656.17
5	655.72	658 56	658.02	654.90	653.79	656.12	658.21	658.41	660.05	660.03	660.08	*c* 657.98
6	656.13	654.74	653.65	654.48	654.45	654.57	656.14	658.19	656.68	660.57	660.72	660.34
7	660.11	660.99	660.43	662.59	665.77	666.40	665.22	664.63	663.84	663.84	664.07	663.62
8	662.85	662.52	660.89	*d* 660.35	659.21	658 30	658.48	658.42	658.07	658.01	660.22	660.86
9	660.89	666.18	667.17	667.57	666.87	665.47	664.59	664.38	667.25	675.73:	680.96::	684.68:
10	*f* 687.88											

Bemerkungen.

Umstände wie früher.

* Die Stunden von 20h.—22h. sind wägen grosser Störungen unzuverlässig.

a Gerling. *c* Hering. *e* Schmidt.
b Nicolai. *d* Lesser. *f* Seibert.

Zeitbestimmung.

	h. m.	h. m. s.
22 October	3 51 Uhr. Z.	= 3 46 18.9 M. Z.
23 October	19 36	= 19 31 10.2

AM 28 und 29 NOVEMBER, 1851.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
10	659.34	658.70	659.45	659.74	658.66	659.16	659.28	659.84	660.09	660.23	660.17	660.35
11	660.05	659.97	659.88:	660.04	660.07	660.33	659.95	659.63	659.37	659.38	659.02	659 05
12	*a* 658.68	658.11	658.42	658.92	658.18	658.13	658.66	658.90	659.08	659.13	659.29	659.37
13	659.63	660.23	660.07	660.63	660.53	660.88	660.40	660.07	660.04	660.08	660.53	660.35
14	660.25	*b* 660.36:	661.17:	660.03	660.00	660.03	659.82:	660.48:	660.59	660.02	659.94	659.44
15	658.25	657 22	657.92	658.33	657.68	658.41	658.79	659.27	659.40	659.33	658.97	659.43
16	659.43	*c* 658.93	659.20	660.35	660.00	660.00	659.96	660.39	660.00	660.00	660.36	660.30
17	660.27	660.00	660.35	660.25	660.34	660.00	660.00	660.00	660.00	661.30	660.33	*d* 661.36
18	661.24	660.16	659.98	660.98:	660.47	660.80	660.28	660.95	661.04	660.64	660.18	660.37
19	660.27	660.59	661.03	659 98:	659.52	660.14	660.13	660.57	660.58	660.72	660.81	660.78
20	660.88	661.20	661.87:	661.65	661.77	662.03:	662.50	662.66:	661.95::	662.83:	662.60	662.62
21	662.30	667.78	661.31	661.39	661.48	660.48:	660.65	660.33:	659.42:	658.22	658.16::	658.13:
22	656.75	*e* 656.23	655.13	655.05	653.38	654.13	654.18	653.38	653.11	656.29	655.11	650.14
23	651.29	650.18	649.15	649.13	648.21	648.21	648.10	647.32	647.23	647.16	647.35	648.21
0	647.13	*f* 648.35	647.88	657.58	647.52:	648.12	648.92	648.23	648.15:	647.48	647.91	647.91
1	648.45	648.45	649.31	649.93	650.03	650.00	650.00	650.00	649.59	649.38	649.78	649.68
2	649.49	*c* 644.43	650.24	650.13	650.17	650.08	650.08	650.08	650.03	650.05	650.09	650.00
3	648.11	650 09	650.09	650.03	650.11	650.06	650.09	650.13	650.02	650.05	651.18	*f* 652.26
4	652.27	652.60	652.61	652.81	652.98	653.08	653.22	652.93	653.09	653.00	653.13	652.69

AM 28 und 29 NOVEMBER, 1851—Continued.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
5	652.76	652.56	652.13	651.98	652.08	652.11	652.84	. . .	652.53	653.22	653.43	*g* 653.83
6	654.33	654.43	654.91	655.30	655.03	654.33	654.17	654.06	653.66	653.54	653.82	654.41
7	654.14	655.28	655 95	656 94	657.47	658.18	658.37	658 87	659.32	659 49	659.43	659.78
8	659 81	660.07	660.16	660.40	660.00	660.25	660.32	660.48	660.36	661.35	660.00	660.00
9	661 00	660.00	660.00	660.00	660.00	660.00	659.60	659.47	661.40	660.00	660.00	660.00
10	*d* 660.00											

Bemerkungen.

Unstände wie früher.
Die Beobachtungen von 20h. 40m.—21h. 55m. sind wegen Störung durch Militär unzuverlässig.

a Gerling. *d* Hoffmeister. *f* Schmidt.
b Hering. *e* Schoenfeld. *g* Lesser.
c Schubart

Zeitbestimmung.

	h. m.	h. m. s.
28 November	2 22 Uhr Z.	= 2 17 20.1 M. Z.
29 November	20 11	= 20 6 11.1

AM 24 und 25 DECEMBER, 1851.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
10	670.62	. . .	671.45	671.43	672.25	672.13	669.10	667.28	667.25	667.98	669.37	669.78
11	671.72	673.93	675.53	676.27	680.92	680.23	680.40	679.60	677.20	677.32	676.50	677.48
12	678·25	678.25	*a* 630.38*	675.24	675.26	673.32	670.38	671.00	672.48	672.32	670.00	670.00
13	670.00	668.19	673.45	680.00	680.00	677.28	676.31	675.27	673.37	672.32	676.33	660.00
14	655.40	654.34	*b* 667.45	668.08	675.61	680.73	683.76	684.76	685.51	. . .	686.75:	681.62
15	678.35	677.65	675.52	674.17	672.22	671.48	669.82	668.73	668.09	667.56	670.33	*c* 673.04
16	678.23	677.71	679.16	680.26	681.66	682.49	682.01	680.67	680.07	681.30	681.95	680.62
17	679.84	677.13	675.41	675.99	675.14	674.53	674.67	674.90	674.66	675.35	674.66	671.93
18	671.48	670.33	*d* 671.10	671.16	670.20	670.26	672.21	672.18	675.26	673.22	670.13	670.23
19	670.18	670.08	670.13	670.13	668.18	668.23	668.11	665.35	665.17	666.25	665.05	665.12
20	665.28	*e* 664.22	664.50	664.52	664.05	663.86	663.83	665.67	666.43	666.63	666.82	667.72
21	666.50	664.95:	666.48	666.90	666.85	665.77	665.27	664.40	662.76	662.15:	660.85	660.93
22	660.45	660.25	660.62	660.05	*f* 659.23	657.28	657.08	657.09	656.42	655.91	655.78	654.05
23	655.03	653.47	651.72	†	653.20:	649.48	646.77	646.45:	649.58:	649.20:	649.50	650.32
0	652.48	652.80	652.54	651.07	*g* 653.17	654.17	652.41	652.14	651.22	650.15	658.39	658.12
1	654.78	653.08	650.93	650.38	651.28	650.23	655.24	658.33	660.22	663.23	. . .	661.79
2	665.19	666.29	670.13	*e* 667.78	668.94	668.82	665.97	666.83	667.01	666.04	665.79	666.58
3	667.64	669.84	671.19	671.68	672.03	673.13	673.76	672.78	672.50	671.93	671.86	671.87
4	671.51	671.17	λ 671.60	671.95	671.72	671.70	671.38	671.35	670.65	671.63	671.52	671.70
5	675.78	676.45	684.62	682.47	682.65	680.42	677.28	675.52	675 03	674.20	671.73	670.92
6	670.40	*a* 670.54	669.97	668.29	667.20	667.32	666.89	667.60	666.08	665.87	665.73	665.68
7	666.49	667.48	667.78	667.26	667.80	668.52	669.18	669.80	670.04	670.52	671.52	671.97
8	671.26	670 83	670.40	670.25	669.98	669.98	670.77	670.98	672.21	672.48	675.45	678.64
9	680.18	679.33	677.91	676.95	676.68	675.08	674.98	674.40	674.00	673.13	673.75	674.49
10	*g* 675.80											

Bemerkungen.

Umstände wie früher.
* Hier ist wahrscheinlich ein Irrthum vorgefallen.
† Störung durch Militär.

a Berkenbusch. *d* Lesser. *g* Schubart.
b Hoffmeister. *e* Schmidt. λ Seibert.
c Hering. *f* Gerling.

Zeitbestimmung.

	h. m.	h. m. s.
24 December	3 44 Uhr. Z.	= 3 39 19.0 M. Z.
25 December	20 39	= 20 34 21.6

AM 21 und 22 JANUAR, 1852.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m	40 m.	45 m.	50 m.	55 m.
h.												
*10	. . .	678.79	678.53	678.39	679.01	679.82	679.63	679.24	679.53	679.73	679.92	679.75 :
†11	680.82	683.98	685.33	686.32	685.81	685.58	684 90	683.99	683.20	685.14	684.18	684.88
12	682.94	*a* 678.56	677.25	673.03	670.50	671.38	673.28	677.25	679.88	677.63	674.35	670.06 :
13	668.03 :	667.15 ::	668.88	667.93	670.90	673.42	671.43	671.08	673.41	674.93	675.39	677.23 :
14	*b* 679.68	682.80	682.92 :	682.44	685.36	685.96	686.14	683.80 :	683.61	686.86	687.01	683.77
15	680.10	677.86	676.72	678.60	680.32	682.52	684.58	685.86	686.16	684.73	681.55	680.27
‡16	678.93	*c*	681.98	680.23	677.72 ::	674.28	. . .	671.28	671.23	671.78	671.66	670.97 ::
17	665.42	666.41	669.07	675.72	675.65	674.75	673.00	671.49 :	673.24	673.63	674.33	669.70 :
18	667.82	*d* 665.93	664.44	664.15	665.62	665.80	665.40	665.93	675.63	666.03	665.93	660.00
19	667.08	668.33	668.08	667.29	671.12 :	674.03	675.89	678.76	678.88	680.15	680.33	681.13
20	680.71	680.41	680.23	*e* 681.40	679.71 :	679.15	679.18	678.92	680.17	680.03 ::	680.49	678.40 :
21	678.87	678.63	678.40	676.42	677.14	678.12	677.95	677.41 :	676.69 :	677.33	678.38 ::	677.67
22	678.11	676.13	677.23	675.20	680.42	677.23	676.36	676.72	675.23	674.77	675.05	674.20
23	673.72	673.87	673.10	672.73	671.93	671.68	671.00 :	670.25	670.08	669.67	668.79	668.10
0	667.58	666.25	666.31	667.18	666.27	666.22	666.24	665.19	664.70	664.22	664.18	664.11
1	664.18	664.09	663.48	664.28	664.12	663.62	663.32	662.44	662.13	662.27	662.24	*e* 662.38
2	664.66	665 37	666.50	666.59	668.47	665.08 :	664.05	662.89	666.99	669.44	671.16	668.93
3	670.13	663.42	658.22 :	652.31	642.60	639.23	643.46 :	653.21 ::	664.91	665.91	661.72	661.10
‖4	663.92	660.20 ::	*c* 663.12	651.70 :	664.52 ::	664.40	667.04 ::	670.24 :	661.58 :	653.64 :	654.51 :	650.45 ::
5	661.61	657.52 :	672.04	669.48	665.93	659.18	660.32	664.41	670.12	662.70 :	650.99	649.28
6	*g* 656.29 :	666.57	665.23	663.80	661.93	661 73	663.18	665.80	668.18 :	670.37	673.12 :	678.78 :
7	673.08	684.58 :	693.52	692.35	689.52	684.50	681.58	678.97	677.07	676.83	676.13	676.00
8	678.75	684.82	691.63	700.90 ::	*f* 713.22 :	720.41	720.00	720 37	718.30	696.37	688.29	680.00
9	684.37	685.00	683.00	680.00	680.00	680.00	680.00	680.00	680.00	680.00	680.00	684.33
10	*h* 680.00											

Bermerkungen.

Umstände wie früher.

* 10*h* verpasst wegen Verspätung der Stadtuhr.
10*h*. 5*m*. absichtlich beunruhigt.

† 11*h*. fängt es an heftig zu stürmen.

‡ 16*h*. 5*m* / 16*h*. 30*m* } verpasst.

‖ 4*h*. 5*m*. Störung durch einen Wagen, zwischen 4*h*. 15*m*. ; 4*h*. 20*m*. do. do.

a Gerling. *d* Hering. *g* Schönfeld.
b Seibert. *e* Schmidt. *h* Hoffmeister.
c Lesser. *f* Schubart.

Zeitbestimmung.

	h. m.	h. m. s.
21 Januar	3 31 Uhr Z.	= 3 26 9.0 M. Z.
22 Januar	21 21	= 21 16 9.3

AM 27 und 28 FEBRUAR, 1852.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
10	*a* 722.95	715.50	703.21	696.68	696.55	701.12	706.86	706.57	704.65	701 88	698.98	694.27
11	700.79	706.48	708.80	709.99	712 05	718.66	720.64	716.72	714.19	712.69	712.48	704.98
12	706.48	*b* 710 57	709.78	703.57	700.02	702.07	704 98	709.75	702.15	709.78	711.95	712.93
13	713 05	710.27	710 72	710.43	710.17	706.85	707.27	705.77	705.52	705.68	703.82	696.63
14	692.28	692 00	*c* 692.02	698.38	687.42	688.08	690 67	690.86	689.57	692.03	692.16	695.58
15	698.21	699.89	702.72	701 83	695.33	691.84	688.59	684.56	682 23	683 76	679.99	679.73
16	677.20	*d* 676.63	675.89	676.27	676 21	677.49	678 83	677 78	680 59	680.67	684 53	686.27
17	685.20	689.63	710.28	690.97	690.94	692 49	691.76	694.26	695.06	695.44	693.27	695.31
18	694.10	695.80	692.70	*e* 691.93	689.67	686.93	687.67	691.53	692.17	692.38	690.82	683.40
19	682.52	677.83	670.52	682 62	684.83	688.08	684.21	689.02	683.18	681.28	677.42	679.75
20	679.73	682.11	*f* 685.97	686.28	684.10	683.82	683.30	680.93	682.52	677.29	671 46	677.05
21	677.02	681.28	677.73	677.79	677.30	673.51	677.31	676 96	677 23	677.47	678.15	678.18
22	675.72	680.29	*e* 677.38	677.18	678.26	675 30	676.21	675.23	674.11	674.53	675.12	672 43
23	665.18	654.72	653 07	657.87	664.25	665.24	664.16	661.48	665.31	666.16	666.26	666.69

AM 27 und 28 FEBRUAR, 1852—Continued.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
0	667.50	669.36	670.88	672 31	670.25	670.21	670.13	g 663.51	670.42	672.35	670.30	668.30
1	663.27	665.32	663.00	665.79	662.46	662.26	660.00	666.33	667.33	667.39	669.98	670.00
2	670.33	669.29	669 31	667.26	663.30	666.33	668.23	e 665.16	666.32	666.24	667.23	666.15
3	665.00	660.20	663.54	660.08	660.63	661.08	661.29	662.23	663.43	664.45	666.08	675.38
4	687.33	690.23	684.73	688.63	686.63	690.21	688.38	685.17	682.57	676.57	675.16	675.03
5	675.00	674.93	k 673.22	672.80	673.57	675.03	674.51	673.67	674.00	674.54	675.35	677.09
6	678.71	678.23	679.69	681.18	680.37	679.10	678.68	679.73	680.82	680.62	679.00	680.34
7	684.62	688.75	692.83	690.20	685.33	684.65	690.75	692.05	692.93	688.82	687.41	685.72
8	689 66	690.04	i 687.42	686.52	691.81	698.94	697.02	696.71	698.33	697.01	692.58	688.36
9	684.87	681.61	682.71	686.05	686.08	682.70	682.29	682.89	683.04	683.13	681.45	682.13
10	683.24											

Bemerkungen.

Umstände wie früher.

a Seibert. d Hering. g Hoffmeister.
b Berkenbusch. e Schmidt. k Schubart.
c Schönfeld. f Lesser. i Hellwig.

Zeitbestimmung.

	h. m.	h. m. s.
27 Februar	4 12 Uhr Z.	= 4 7 16.8 M. Z.
28 Februar	20 6	= 20 1 19.7

AM 24 und 25 MARZ, 1852.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
10	677.38	677.20	677.14	678.53 :	678.36	678.36	678.42	678.52	678.85	678.93	678.87	679.00
11	679.33	679.19 :	679.09	679.23	678.96	679.20	679.22	678.95	679.26	679.30 :	679.08	a 679.59
12	679.60	679.55	679.49	679.75	679.85	679.70	679.87	679.78	679.75	679.83	679.75	680.00
13	680.11	680.03	679.73	680.00	680.00	679.98	680.12	679.87	679.93	680.10	680.30	b 680.18
14	680.66	680.50	680.53	680.60	680.28	680.32	680.64	680.22	680.38	680.43	680.30	680.47
15	680.46 :	680.27	680.34	680.85	680.98	680.80	681.02	681.01	681.25	681.38	681.28	681.48
16	681.39	681.15	c 681.60	681.48	680.65 :	681.05 :	681.99	681.53 :	681.64 :	682.26	683.08 :	681.75
17	682.59 :	682.54 :	682.87 ::	682.32 :	682.91 :	683.74 :	682.51	683.83 :	683.71 :	683.09 :	683.53 :	683.48 :
18	684.36 :	683.07 ::	684.95 :	d 685.63 :	d 685.45	684.50	686.31	685.28	688.31	690.35	690.00	e 688.33
19	689.29	688.40	690.38	690.34	690.92	690.29	691.33	695.35	690.44	690.43	690.00	694.03 ::
20	694.81	696.46	696.12 :	695.86	696.54 :	696.87	697.24	696.98	697.40	697.04 :	697.33 :	696.76
21	696.68	696.99	696.58 :	696.61	696.26	695.25	694.78	694.32	693.29	691.88	690.40	f 688.93
22	687.82	686.00	685.07	684.29	682.73	681.43	680.47	679.69	679.18	678.72	677.95	677.08
23	676.32	675.41	675.20	674.94	674.83 :	672.22	671.02	669.48	668.77	667.29	665.78	664.99
0	664.38	663.76	662.49	g 661.57	660.85	660.26	660.25	659.51	660.21	660.18	659.25	d 660.14
1	660.22	660.04	660.08	659.24	658.23	658.25	659.15	660.09	660.10	660.13	660.19	658.13
2	657.17	656.47	656.78	656.77	657.63	658.38	658.64	659.08	659.99	660.35	661.18	661.09
3	*661.37 ::	660.66	661.34	661.46	662.80	663.53	664.00	665.24	666.49	667.98	668.64	668.12
4	668.20	† 668.23 ::	g 670.42	669.40	669.98	671.14	671.47	672.50	672.73	672.12	672.50	672.73
5	673.79	673.74	674.01	674.38	674.72	675.68	676.28	676.88	676.91	676.95	676.83	k 676.74
6	676.53	676.80	677.08	676.99	676.68	676.46	676.31	676.48	676.63	676.79	676.61	676.66
7	676.91	677.18	677.20	677.23	677.38	677.07	676.88	677.18	676.81	676.48	677.26	677.53
8	677.54	c 677.67	c 677.58 :	678.41	678.11	678.11 :	677.65 :	677.72	677.68	678.31	678.12	678.14
9	678.12	677.96	678.53	678.03	678.34 :	678.83 ::	679.74	680.11	682.12	682.92 :	685.68	689.27 :
10	i 690.98											

Bemerkungen.

Umstände wie früher.

* Thürstörung. † Desgl.

a Hering. d Schmidt. g Mühl.
b Schubart. e Hoffmeister. k Seibert.
c Lesser. f Gerling. i Nicolai.

Zeitbestimmung.

	h. m.	h. m. s.
24 Marz	3 55 Uhr Z.	= 3 50 4.1 M. Z.
25 Marz	21 28	= 21 23 2.9

AM 21 und 22 APRIL, 1852.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
10	678.75:	684.59	688.08:	691.88	688.03::	683.63	680.42:	674.91	676.42	667.59::	683.57	655.10
11	659.95::	680.19::	697.70::	697.58:	694.89	683.04::	679.24:	682.06	672.98:	668.59	667.69	680.13::
12	687.20	687.57	*a*683.73:	677.70:	677.78::	682.63:	680.27:	679.63:	679.70	682.55	687.10::	685.65::
13	685.31	685.50	684.05	680.83	674 54	666.02	668.42	667.47	664.73::	659.43	655.85::	646.38
14	648.20	655.33	650.47	*b*655.19	654.10	655.08	654.08	655.10	656.34	657.15	659.13	660.18
15	660.08	668.25	667.15	665.40	668.54	670.40	670.11	669.11	668.14	666.18	665.45	*c* 662.35
16	666.22	660.32	660.01	659.46	657.50::	667.83	656.58	657.33:	. . .	653.72:	654.25:	657.54
17	*657.03::	660.15	661.18	660.46	660.56::	661.78::	658.80	659.95	661.45:	661.60	664.68:	666.13
18	669.68::	*d*665.48	*d*670.25	672.34	674.47	678.80:	680.43	677.43	680.19	678.29	679.31	678.31
19	680 28	681.28	683.30	681.23	680.33	680.41	682.13	685.26	685.24	685.13	685.23	686.23
20	686.13	687.38::	687.11:	686.30	683.47:	685.01	685.51	687.58:	*687.23::	682.22::	681.83	684.16
21	*683.67	683.07:	681.87	679.08	680.30	672.96::	675.80::	672.92:	677.22::	674.44	673.17	*e* 671.23::
22	672 59::	677.99:	663.56::	658.58:	659.08	655.62:	651.96	650.52:	651.80	650.32	652.68:	649.65
23	647.76	649.15:	650.17:	650.26	648.15::	647.06:	643.93:	642.55::	639.83:	642.59	*639.89::	640.67
0	*638.91	638.32	*a*644.53::	642.58	640.00	640.41	640.37	642.45	642.37	635.36	630.52	630.26
1	630.58	642.43	635.33	641.38	640.34	640.36	635.43	637.27	639.37	637.53	639.30	*f* 636.35
2	634.48:	634.62:	637.87:	638.93	639.63::	637.05:	641.10	642.63:	646.33:	*645.85::	646.33	644.50
3	*645.44	647.42	647.93::	649.41	649.30:	648.97:	650.48	650.96:	653.33:	652.70	652.21	657.60
4	651.07	651.11	651.17	*e* 651.80	652.71	652.00	654.39	654.62	657.43	660.00	660.53	661.50
5	659 38	660.48	660.43	660.47	660.42	660.43	664.43	664.57	670.46	675.27	675.33	680.00
6	680.00	683.53	690.49	690.36	*f* 690.36	687.89::	682.24::	679.55	680.37:	672.98:	673.19	674.09
7	674 64	675.17	*677.34	675.82	675.00	671.71	*670.98	670.28	671.34	672.08	672.78	673.31
8	672.49	669.84	*e* 668.24	667.78	666.19	666.38:	665.80:	663.98	663.49	662.81	664.51	666.28::
9	667.02:	667.84:	668.86	668.18	668.57::	668.05::	665.47	665.33:	661.25:	658.42	659.57	665.32
10	*d* 674.36::											

Bemerkungen.

Umstände wie früher.
* Wagenstörung.

a Gerling. *b* Schubart. *c* Schmidt. *d* Hering. *e* Möhl. *f* Hoffmeister.

Zeitbestimmung.

	h. m.	h. m. s.
21 April	3 53 Uhr Z.	= 3 49 31.3 M. Z.
22 April	22 53	= 22 49 33.4

AM 28 und 29 MAI, 1852.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
10	*	. . .	. . .	*a*	667.09:	667.49	665.87	664.98	662.97:	660.87:	661.20	663.37
11	666.30	667.74	665.93	665.28	664.72	664.50	660.34	665.68	. . .	666.92		
12	*b* 667.18 †	667.08	665.57	665.22	663.85	662.23	664.69	665.11	666.33	668.14	669.66	669.87
13	669.69	669.21	669.54	679.98	672.08	672.14	668.76	672.43	670.48	671.32	669.98	669.88
14	670.22	670.34	671.78	672.01	672.68	672.67	673.53	674.18	670.52	*c* 672.09	672.38	668.33
15	665.55	668.32	665.00	665.39	662.47	663.41	665.41	662.54	663.45	660.51	660.40	659.33
16	660.42	661.53	660.45	662.51	658.38	661.40	661.45	660.38	*d* 663.38	663.55	665.54	670.28
17	671.37	675.25	674.90	675.90	678.55	678.98	679.77	679.43	683.13	683.40	685.92	687.33
18	688.01	687.27	685.92	689.47	*e* 690.51	692.45:	691.84	691.58	693.46:	694.76	694.02	690.82
19	690.42	683.42	687.41	687.58	688.96	688.51	687.57	‡ 688.22	689.23	690.72:	§ 690.10:	690.38
20	‡ 689.73:	*d* 686.55	684.42	683.58	684.78	683.65	682.81	682.50	680.02	680.38	678.37	677.68
21	681.11	677.15	675.61	674.83	673.57	673.52	671.83	674.63	669.83	668.17	665.78	665.12
22	663.86	662.23	663.77	*f* 662.13	661.14	660.15	660.38	660.18	660.18	659.11	658.11	658.17
23	657.13	656.22	656.19	655.33	655.17	655.11	654.57	653.28	652.25	651.23	650.23	649.41
0	649.38	648.20	647.40	646.54	646.17	*c* 647.20	*e* 647.23	647.99	648.43	648.79	647.56	648.34
1	648.23	648.86	649.26	649.38	649.46	650.06	650.76	651.00	651.23	652.32	652.08	652.25
2	651.99	652.83	651.98	*f* 652.32	*f* 652.92	653.25	653.56	654.21	655.20	655.18	656.24	656.13
3	656.13	656.10	656.09	657.29	658.38	659.27	660.11	660.07	660.05	660.08	660.06	660 11
4	660.06	661.22	662.28	663.11	*g* 663.68	664.50	665.12	665.73	666.09	666.77	667.14	‖ 665.67
5	667.82	671.51	669.05	670.10	669.40	670.38	672.10	672.62	673.23	673.38	672.03	671.79
6	*b* 671.88	671.21	670.93	670.90	669.40	670.08	669.78	668.91	669.08	668.39	669.02	667.48

AM 28 und 29 MAI, 1852—Continued.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
7	667.99	668.43	668.38	667.40	667.31	668.53	668.31	668.73	668.57	668.52	669.01	669.45
8	k 670.11	669.36	670.29	670.52	670.17	670.11:	671.57	670.63	670.74	670.33	670.37	670.42
9	671.33	671.60	672.41	672.48	673.43	673.78	674.01	674.92	674.06:	672.78	670.80	670.23
10	670.42											

Bemerkungen.

Umstände wie früher.

* Die Beobachtungen von 10h. 0m. — 10h. 15m. sind durch ein Versehen des Prof. Gerling versäumt worden.

† Stand um 0m.5 corrigirt.

‡ Von 19h. 35m. — 20h. 0m. fortwährende Störung durch das in der Nähe exercirende Militär, auf die Schwingung des Magneten von 20h. 0m. = 22h. scheint gleichfalls das fortwährende Exerciren des Militärs Einfluss gehabt zu haben.

§ Um 19h. 50m. Störung durch einen Wagen.

‖ Störung durch Militär.

a Wrightson. d Möhl. g Schubart.
b Lesser. e Seibert. k Hering.
c Hoffmeister. f Schmidt.

Zeitbestimmung.

	h. m.		h. m. s.	
28 Mai	3 41	Uhr Z. =	3 36 18.6	M. Z.
29 Mai	18 56	=	18 51 20.5	

AM 23 und 24 JUNI, 1852.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
10	699.76	697.78	696.98	696.88	696.13	697.20	698.86	699.47	700.22	702.10	702.58	702.40
11	701.59	701.78	702.08	702.25	702.86	703.88	703.77	702.29	702.30	702.63	702.22	a 704.58
12	704.81	703.93	703.73	703.67	703.73	703.73	704.68	704.37	704.93	705.17	705.45	705.42
13	705.15	705.14	705.04	705.05	704.97	704.43	703.77	703.35	703.50	705.04	705.67	b 706.82
14	707.81	707.01:	705.79	709.80	704.06	704.19	705.43	706.47	707.21	708.73	710.00	710.43
15	710.94	710.22:	710.30	710.18	710.28	709.58:	708.58	708.46	708.86	710.09:	709.45	c 710.16
16	710.30	709.85	710.13	709.90	711.37	711.60	711.67	711.77	710.33	710.13	710.73	711.13
17	711.77	711.27	709.92::	708.97:	709.62	709.44	710.54	710.53	710.87	708.95	710.07	d 711.23
18	711.18	709.96	712.40:	714.03	714.16	714.86	714.68	715.22	711.18:	708.83	709.16	711.07
19	710.23	712.97	714.79	714.94	714.33	712.43	712.84	713.86	713.43	713.83	713.86	713.60
20	714.87	711.58	711.34	* 711.13	710.09	* 708.98::	709.80:	716.38::	704.80:	709.28	708.63:	707.62:
21	708.52	e 707.78	707.12	707.41	709.03	709.28	708.37	705.33	706.28	707.36	706.18	705.35
22	705.33	f 702.40	704.54	703.31	701.52	700.10	698.22	698.10	698.18	696.23	695.46	694.32
23	692.31	692.09	691.32	690.21	690.05	689.39	688.23	686.37	685.46	684.20	684.17	685.15
†0	680.93	680.10	g 679.18	678.48	679.06	679.62	679.65	680.61	679.64	678.88	678.66	677.94
1	a 676 64	676.01	675.49	675.51	675.55	675.77	675.88	676.25	677.24	678.06	677.98	678.77
2	678.98	680.14	679.17	679.13	680.09	680.26	680.08	680.03	680.03	680.00	680.02	680.00
3	680.05	679.18	678.24	679.18	679.31	680.17	681.28	682.61	683.03	683.11	683.22	g 685.04
4	684.78	685.90	686.41	686.80	687.72	686.64	687.58	687.73	687.76	‡ 687.74::	688.34	688.58
5	688.91	§ 688.55::	689.20	689 63:	689.99	691.37	689.79	689.73	691.98	692.50	692.86	692.20
6	691.92	691 32	k 690.13	690.49	690.95	692.53	692.80	698.03	694.13	694.78	695.03	i 695.07
7	695.33	696.05	696.87	696.69	697.34	698.66	698.56	697.46	695.81	697.69	698.78	698.56
8	‖ 698.51	‖ 698.78	699.20	699.05	698.45	697.30	697.89	699.48	699.61	699.78	700.17	e 699.93
9	699.17	700.04	700.46	700.63	699.63	697.63	698.55	698.93	698.53	697.11	698.04	699.03
10	698.98											

Bemerkungen.

Umstände wie früher.

* Bei 20h. 15m. und von 20h. 25m. — 21h. 5m. Störungen durch Militär.

† Stand bei 0h. 10m. 699.18 wurde mit Bewilligung des Beobachters, in 679.18 verändert.

‡ Wagenstörung.

§ Störung durch Militär.

‖ Störung durch Thürzuschliessen.

a Lesser. d Schubart. g Schmidt.
b Wrightson. e Möhl. k Gerling.
c Hering. f Hoffmeister. i Scheffer.

Zeitbestimmung.

	h. m.		h. m. s.	
23 Juni	3 37	Uhr Z. =	3 32 11.6	M. Z.
24 Juni	19 9	=	19 4 13.3	

AM 21 und 22 JULI, 1852.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
10	688.88	688.63	689.25	689.65	690.63	690.93	691.43	691.54	692.08:	691.77:	692.10:	691.74::
11	691.94	692.31	692.90	693.72	694.53	694.42:	695.15	695.38	a 695.63	696.17:	696.50	696.09
12	696.85	696.30	697.19	696.63	697.13	697.68	697.98	698.04	698.24	698.87:	699.43	699.93
13	699.25	699.11	699.21	698.55	699.18	698.54	697.68	698.35	698.78	699.02	699.51	699.88
14	700.09	b 700.01	699.23	700.38	699.67	699.31	699.00	698.38	699.37	700.47	699.74	700.30
15	700.00	700.00	700.00	700.00	700.00	698.67	699.48	699.39	694.43	697.35	695.37	694.48
16	695.33	c 694.43	694.86	695.28	697.43	698.18	699.38	700.18	700.56	704.13	703.16:	704.00
17	704.67	707.25	707.38	709.02	* 709.54:	710.49:	711.38	712.38:	713.46	713.50	714.38	713.24
18	d 714.17	714.53	714.06	714.78	715.87	715.58	715.10	714.51	714.21:	715.40	715.03	715.00
19	716.37	716.07	716.17	716.39	717.71	716 27	717.07	717.90	717.38	717.88	717.78	a 716.67
20	715.92	* 715.86::	716.24	715.56	715.69	715.39	715.79	716.68	716.26	715.97	716.02	716.24
21	715.96	716.04	716.03	715.61	714.68	712.17	712.71	712.15	712.68	711.36:	710.24	710.14
22	709.41	e 707.46*	705.73:	705.28	704.39	704.07	702.70:	700.05	698.09::	695.98	695.51	693.27
23	689.97:	691.85:	691.06:	689.14	† 687.30::	687.45	686.14	685.93::	684.84:	684.83::	682.09::	678.97
0	678.32	676.77:	675.89	674.28:	b 673.01:	672.28	671.77	671.50	671.62	671.08	670.50	670.53
1	670.32	670.38	669.96	669.60	669.08	668.42	668.66	666.73	666.98	667.74:	667.35	668.41
2	f 668.28	670.19	669.23	669.59	670.26	670.15	671.17	672.15	672.32	673.16	675.16	675.10
3	675.33	674.09	675.07	675.00	675.13	676.23	676.64	677.40	680.11	678.25	680.14	g 682.10
4	682.16	682.49	683.61	683.55	684.43	685.13	687.41	688.10	688.37	687.81	688.43	688.71
5	690.22	691.32:	693.18	693.73	694.03	694.55	695.15	695.16	695.60	695.57	696.36	e 696.45
6	697.60:	697.35::	696.83	699.36:	695.09:	695.36:	695.14	695.18	695.86	695.73:	695.63	695.52
7	695.58	695.47	695.19	. . .	695.23	695.13	695.38	695.68	695.38	695.46	695.93	h 695.58
8	696.64	696.58	696.86	696.86	696.88	696.29	696.11:	696.52::	695.68	695.25	695.67	696.63::
9	695.60	695.55	695.89	695.18	695.18	696.43	696.29	696.68	696.71	697.32	698.56	i 699.73
10	i 699.46											

Bemerkungen.

Umstände wie früher.
* Wagenstörung.
† Militärstörung bis ans Ende der Stunde.

a Schubart. b Medler. c Hoffmeister. d Seibert. e v. Bodeck. f Lesser. g Schmidt. h Scheffer. i Möhl.

Zeitbestimmung.

	h. m.		h. m. s.	
21 Juli	3 54	Uhr Z. =	3 49 18.9	M. Z.
22 Juli	19 55	=	19 50 18.7	

AM 27 und 28 AUGUST, 1852.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
10	697.44	696.98	697.77:	700.05	702.49::	706.53	710.84	715.05	714.18	714.05	713.94	713.16
11	715.03	713.37	716.35:	716.40:	701.13::	693.03::	686.66:	684.38:	687.13	690.10	687.28	a 688.35:
12	691.46	694.19::	700.39:	702.97	704.33	704.23	704.01	703.15	703.07:	702.25	704.28	704.13
13	703.17	704.42	704.99	703.38	702.05	699.66:	696.38	694.22	693.33	692.70	693.13	692.62
14	690.52::	689.34	692.26	694.22	694.68	698.41	697.47	698.41	696.93:	689.53:	678.50:	b 671.29
15	671.73:	680.28::	688.86	693.25	695.16	700.18	702.32:	708.18	703.39::	704.97	716.83	719.98
16	720.54	719.34	721.36	720.38:	721.01	719.74	718.68	716.57	717.75	718.27	717.57	c 716.97
17	717.16::	716.75	715.03	713.88	712.43:	710.40	711.27	712.18	711.73	711.87:	711.11	710.08
18	709.98	710.62	709.93	708.72	707.92	707.57	706.31	708.73	708.10	705.99	704.78	d 703.90
19	703.35	703.67	705.21	707.48	706.31	705.21	701.28	700.03	702.05	701.00	701.33::	702.07
* 20	701.93	699.40	699.85	699.35:	698.13	696.84:	696.03::	695.09:	698.00:	696.92::	695.51:	e 694.69:
21	696.28	697.44:	697.51	697.50	695.56	695.28	695.19::	694.73	695.38	695.03	693.89	693.34
† 22	692.35:	688.59	684.93	684.15:	683.72:	681.76:	672.37::	673.64	673.35	675.32	675.37	f 679.30
‡ 23	680.04	682.06:	682.17:	681.96:	679.57	678.97:	674.08::	677.50::	676.46:	677.52	677.40	675.29::
0	675.21:	675.28	677.97::	676.43	676.65	678.89	679.73	680.21	680.63	680.95	681.73	d 682.29
1	678.70	675.08	672.34	673.43	673.48	674.30	676.63	677.88	682.34	686.60	685.83	690.18
‖ 2	699.26::	702.48:	702.78	703.07:	702.43	701.46::	698.54::	700.64:	704.59:	703.01	704.22::	f 705.38
3	703.78	705.48	706.35:	705.00	702.58::	705.29	704.91	704.40	703.08:	702.00	701.88	700.65

AM 27 und 28 AUGUST, 1852—Continued.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
4	700.29	700.47	698.97 :	699.77	699.69	699.82	700.16	701.21	701.83	702.00	703.38	*g* 701.13
5	700.38	700.74	702.31	700.50	700.70	700.28	699.52	699.28	698.88	699.15	698.71	698.90
*6	698.78	697.11	. . .	700.01	700.11	702.26	703.69	704.16	703.73	703.63	703.52	Å 701.82
7	700.62	700.23	700.18	700.34	699.90	700.14	699.87	700.05	700.13	699.80	698.48	695.61
§8	694.85	697.99	702.38	702.79 ::	708.33	710.03 :	711.83	710.35	706.49 :	703.15	701.98	*a* 700.24
9	700.90	702.17	703.43	703.78	703.38	703.11	701.43	700.28	700.05	700.57	701.23	701.33
10	700.88											

Bemerkungen.

Umstände wie früher.

* 20Å. 5*m*.—21Å. 30*m*. Störung durch Militär.

† 22Å. Wagenstörung. ‡ 23Å. 5*m*. Gewitter.

‖ 2Å. 50*m*. Wagenstörung. § 8Å. 15*m*. Wagenstörung.

a Medler. *d* v. Bodeck. *g* Wrightson.
b Möhl. *e* Lesser. Å Scheffer.
c Schubart. *f* Schmidt.

Zeitbestimmung.

	h. m.	h. m. s.
27 August	4 22 Uhr Z. =	4 17 17.7 M. Z.
28 August	19 9 =	19 4 17.7

AM 22 und 23 SEPTEMBER, 1852.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
10	700.09 ::	709.96	701.46 ::	694.98	692.58	692.17	693.59	699.20 ::	708.70 :	717.98 :	711.90 ::	*a* 700.48
11	695.55 :	692.75	693.89	692.42	687.22 :	688.58	691.43 :	700.86	711.18 ::	720.93 :	722.14	719.76 ::
12	709.22 :	702.22 :	698.00	696.13	694.37	697.03 ::	702.60	705.81	710.73 :	719.12	720.73	*b* 714.73
13	709.48	707.97	705.93	703.16	704.93 ::	722.16 ::	722.03 :	719.63	719.25	719.05	716.88	718.31
14	716.88 :	715.01	714.99	717.23 :	716.91	716.33 :	715.00	712.19	710.18	704.68	705.07	*c* 705.05
15	705.00	705.00	705.08	706.07	710.00	714.44	714.83	715.03	716.13	716.29	716.31	714.79
16	710.00	707.48	703.88	699.95	700.15	698.39	695.69	693.42	689.42	686.50	684.28	*d* 682.80
17	683.27	681.93	680.07	680.22	679.38 :	675.88	675.53	673.60	672.43	675.92	678.50	675.82
18	672.98	670.52	669.72 ::	665.03	664.99 ::	651.90 ::	652.58 :	656.44 ::	661.52 ::	666.33 ::	672.19	*e* 675.58
19	679.95	684.62	690.13 ::	694.56 ::	698.78 :	705.54	707.52	708.16 ::	705.65	705.48	702.18	702.12
20	701.69	702.43 :	704.95	707.04	710 03	711.03	711.75	714.53 :	713.13	709.64	705.75	*a* 704.41
21	703.17	700.75	701.65 :	702.68	701.69	702.85	703.56	702.83	704.77	704.66	706.81	705.23
22	705.31	705.42	706.39	706.48	694.67 ::	697.13	694.78 ::	701.20	699.87 :	699.33	697.27	*b* 696.33
23	694.45	691.78 :	689.93	689.83	684.24 :	681.92 :	684.98	684.31 ::	685.68	685.82	683.13	683.48
0	686.54 :	689.00	688.18 :	687.08 :	687.60	680.00	683.45 :	685.08	685.03	686.73 ::	688.38	*c* 690.13
1	691.95	690.26	688.14	685.69 :	685.78 :	680.64	680.08	678.18	681.25 ::	680.08 :	677.88	674.29
2	674.52	675.00	674.48	673 24	675.10	674 39	677.74	682.83	688.61 :	688.80	686.83	*b* 686.59
3	686.88	683.28	684.04	685.51	685.77	683.59	682.84	682.53	682.73	683.98	684.46	687.79
4	689.33	691.60	692.85 :	697.67	700.16	698.87	698.45	699.40	697.57	694.48	694.63	*d* 697.95 ::
5	701.38	705.06	707.05	706.67	704.40	703.05	702.27	701.80	700.52	699.33	699.32	698.53 ::
*6	699.88	697.01	695.35	697.26	697.20	699.09 :	704.40 ::	714.58 ::	. . .	741.37 ::	728.97 ::	*e* 722.28 :
†7	722.67 :	716.21 ::	708.01 :	705.59	702.98	695.11	689.22 :	684.04	685.78	688.68	692.38	697.81 :
8	700.09	700.50	702.25	703.28 :	703.36	703.46 :	705.18 :	702.53	700.75	701.33 :	705.04	*c* 711.06 :
9	714.33	715.29	716.58 :	715.42	713.25 :	710.96 :	711.42	712.79 :	714.17	714.46	713.88	713.62
10	705.04											

Bemerkungen.

Umstände wie früher.

* 6Å 40*m*. Wegen zu grosser Schwankungen nicht beobachtet.

† 6Å. 30*m*. Wagenstörung.

a Gerling. *c* Schmidt. *e* Nicolai.
b Medler. *d* Schubart.

Zeitbestimmung.

	h. m.	h. m. s.
22 September	3 35 Uhr Z. =	3 30 16.3 M. Z.
23 September	19 42 =	19 37 16.1

AM 20 und 21 OCTOBER, 1852.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
10	703.86	705.29	704.12	698.85:	691.95:	688.88	690.16	692.17	698.30::	706.63::	710.98:	704.23
11	693.73::	685.22:	684.55	688.73	699.45::	713.98:	720.03	720.44	718.41	706.05:	713.38	a 714.09
12	716.95	720.97:	725.26	722.31:	719.83	721.65	719.08	718.24	717.46	715.47	716.39	718.68.
13	720.91:	722.19	723.94	721.73	718.05	715.23	713.22	710.03	705.47:	703.23	703.26	700.23:
14	701.47	b 703.58	704.34	701.73::	698.11	693.38::	679.35::	663.79::	654.32:	651.16	653.24	654.64
15	657.19	661.43:	665.78:	671.27::	675.11:	677.72:	678.98	676.11	673.84	675.00	676.26	676.23
16	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	702.28
17	700.94	701.36	701.17	701.58:	700.20	701.92	703.93	702.96	703.13:	702.93	700.78	699.63
18	697.75	695.12	696.20	697.07	698.47:	698.47:	697.76:	696.50:	696.58	696.31	699.08	699.18
19	697.47::	696.06:	696.97::	694.83	696.96	694.95	696.89:	694.02	694.11:	689.83:	689.58:	c 687.63
20	688.95	686.87::	688.25:	685.74	684.04	683.94	*683.64::	686.50	687.88	685.52	686.05:	686.08
21	685.91	686.75	690.14	688.21	693.39	694.17	693.39	692.04	*691.36::	691.75	690.09	686.57
22	683.11	a 682.73	*683.01::	679.74	680.63	676.96:	677.10	675.12	673.80:	*671.83::	*671.39::	671.28
23	674.54:	670.03:	674.26:	675.04	674.51:	674.08	677.39	680.36	685.02	685.13:	685.15	d 684.89
0	682.94	680.36	678.97::	675.63	670.02	671.05	672.11	670.08	670.09	669.17	670.23	672.18
1	675.08	676.16	677.07	677.00	676.28	678.81:	680.00	679.14	678.57	679.33	680.18	e 681.13
2	681.27	683.22	684.86:	682.31	*675.11::	682.82	683.00	*682.33::	682.83	684.45:	686.00	687.38
3	688.80	*679.88::	693.50	696.27:	706.14::	719.16::	720.58::	736.83:	739.54	736.40	732.73::	f 723.70
4	719.61	718.88::	714.00:	709.48	710.50	710.00	†706.90::	700.23	699.28	700.00	700.00	700.07
5	701.07	700.00	700.00	701.06	701.00	701.00	700.18	698.24	695.61:	695.16	694.30	e 693.13
6	691.23	692.13	692.20	694.65	695.47	696.02	695.12	694.85	695.25	696.88	697.25	694.31
7	701.77	702.50	703.38	705.50	709.00	712.08	714.17	714.35:	719.55	719.97	716.23	f 713.87
8	716.13::	713.47:	719.81:	715.63:	711.98	707.56:	704.35	700.57	700.19	700.25	701.28	702.25
9	703.83	705.41	706.42	706.28	706.07	706.24	706.33	705.67	704.78	704.53	704.53	704.58
10	b 705.03											

Bemerkungen.

Umstände wie früher.

* Wagenstörung. † Militärstörung.

a Gerling. c Möhl. e Schmidt.

b v. Bodeck. d Scheffer. f Schubart.

Zeitbestimmung.

	h. m.	h. m. s.
20 October	4 50 Uhr Z.	= 4 45 20.4 M. Z.
21 October	20 32	= 20 27 19.2

AM 26 und 27 NOVEMBER, 1852.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
10	*	. . .	. . .	. . .	734.62	737.98:	738.88	741.51	742.46	743.45	743.23	741.63:
11	739.03	740.91	740.83	735.27::	728.25::	726.30	730.18::	734.88::	738.43	736.64	730.75::	a 727.43
12	728.61	725.01:	719.53	718 37	717.72	719.73	719.53:	716.76	718.69	719.57:	723.81	724.64
13	728.68	731.06::	733.56	733.57	733.23:	736.45	740.67::	741.14	738.83:	733.36	728.78:	727.19:
14	724.97	724.75	733.53	722.16	721.78	b 720.58	710.83	712.70:	709.68:	707.53	710.18	711.27
15	711.34	710.36:	711.23	712.04	714.92	717.93	720.17:	719.28:	718.97	717.72	712.73:	710.79
16	711.07	709.36	709.37	707.49	706.44	705.65	705.39	705.74	703.98	704.73	706.11	704.70:
17	704.62	703.85	704.59	705.41:	706 69	708.59	c 709.71	710.79	714.36	714.79	715.15	716.57::
18	721.94	718.16::	713.45	716.71	715.88::	715.69::	714.80	715.37	715.90	717.35	715.74::	716.51
19	716.03	d 716.53	717.85	719.33	721.99	721.85	720.88	719.88	719.73	716.33	714.37:	e 714.55
20	714.33::	716.05	719.78	719.03	717.19	717.48::	714.06::	712.80	721.43	721.68	720.69::	723.98:
21	718.55	721.12	719.68:	722.17::	724.15	713.42::	717.02::	719.93::	717.97	718.30	717.51	714.18:
22	717.39::	716.37::	715.53	719.33::	f 715.68:	715.85	713.83	†714.43::	712.41:	711.43	709.73	709.93:
23	712.24	710.68	707.74::	710.79	708.76	709.28	708.43	707.75::	706.20:	706.76	705.83	706.77::
0	704.78:	705.00	705.80	e 706.35:	706.22	706.18	706.18	705.08	705.00	706.21	707.09	705.08
1	705.02	705.00::	704.15	704.18	703.56	703.11	702.38	702.24	701.17	700.17	699.68	g 698.55
2	695.13	‡698.28::	689.25::	697.60::	701.29::	702.44::	703.72	703.38	702.60	703.05	703.32	704.52
3	704.22	704.60	705.48	713.43	715.33:	719.04:	721.25	725.13	726.70:	729.32	735.64	743.72
4	740.24	h 735.30:	736.56:	725.45	718.32	713.22	710.63	708.63	708.80	710.00	707.19	714.63

AM 26 und 27 NOVEMBER, 1852—Continued.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
5	709.60	710.81:	711.46::	711.46::	712.93	712.43	709.98	709.55	708.63	707.82	706.65	*d* 705.17
6	705.33	707.09	708.83:	711.62	713.50	714.20	717.44	718.65	718.18	721.13	721.44:	718.13:
7	715.98	716.33	716.61	719.59	725.25	732.93	745.82::	751.50::	750.78	741.12::	734.44::	727.29
8	721.92:	719.94	719.65	719.43	719.23	719.40	720.68	719.30	719.36	719.18	718.46	*f* 718.03
9	719.56	721.97:	723.31:	723.52	721.41	718.05	716.68	716.31	717.26	719.33	719.70	*e* 719.08
10	718.70											

Bemerkungen.

Umstände wie früher.
* 10h. 0m. — 15m. Fehlen.
† 22h. 35m. Wagenstörung.
‡ 2h. 5m. 2h. 10m. Wagenstörung.

a Gerling. *d* Schubart. *g* Schmidt.
b Mohl. *e* Bodeck. *h* Shesser.
c Trummel. *f* Medler.

Zeitbestimmung.

	h. m.	h. m. s.
26 November	3 27 Uhr Z.	= 3 22 14.5 M. Z.
27 November	21 4	= 20 59 14.2

AM 22 und 23 DECEMBER, 1852.

Göttinger Zeit.	0 m.	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	35 m.	40 m.	45 m.	50 m.	55 m.
h.												
10	774.59	768.35	766.10	763.13	755.33	747.71	743.75	742.57	745.14	745.49	754.28	*a* 741.33
11	739.31	735.28	733.43	731.29	731.39	731.73	730.66	729.42	728.20	727.17	727.08	729.28
12	729.59	729.51	732.47	731.55	727.83	724.04	722.92	726.09	727.80	729.88	732.68	*b* 731.39
13	731.43	731.77	730.01	731.53	734.42	736.94	737.12	739.13	737.85	736.47	733.05	730.33
14	729.43	730.91	732.17	733.53	734.84	734.98	734.02	733.37	733.79	731.80	729.24	728.18
15	727.00	725.86	725.08	724.18	721.04	724.67	725.00	725.85	725.14	723.83	724.88	725.78
16	724.80	724.13	725.10	727.68	728.28	728.07	725.67	724.10	725.00	724.93	724.85	724.57
17	724.33	724.10	724.03	723.50	723.59	723.32	723.24	723.17	721.96	720.87	721.00	*c* 721.31
18	721.15	721.88	721.59	722.42	722.77:	722.98	722.08	720.53	720.40	719.15	716.77	711.52
19	715.18	716.28	719.21	720.00	720.92	721.28	720.00	721.55	723.81	724.00	725.08	*d* 724.10
20	725.00	724.83	726.68	727.69	727.39	727.83	727.27	727.17	720.19	724.63	725.98	*e* 724.48
21	725.47	724.91	725.50	723.15	725.83	727.94	728.73	730.05	730.76	729.84	729.73	729.31
22	728.80	728.22	727.58	724.98	724.53	724.68	724.67	724.99	725.71	724.84	725.73	*a* 723.42
23	722.10	721.18	722.10	721.98	721.65	720.80:	722.13	720.97	719.55	718.48	719.26	*f* 719.19
0	721.80	714.78	712.63	712.29	713.34	715.74:	713.78:	713.99	713.18	715.85	717.33	*a* 719.63
1	717.58	715.71	716.19:	717.73	712.93::	714.11	709.51	711.33	712.30	712.63	713.88	714.97
2	714.48	714.33	714.74	713.00	714.38	714.83	717.75	717.00	715.00	716.06	715.08	*d* 716.08
3	716.91	720.00	720.00	719.08	718.88	717.05	716.08::	715.00	715.71	715.00	715.00	715.42::
4	714.67	715.00	715.64	715.03	719.19	721.45	719.22	716.63	718.18	715.76	715.13	*g* 714.97
5	718.22	718.40	717.33	714.92	710.98	709.15	709.88	711.01	711.96	714.50	717.09	717.73
6	716.56	716.43	715.58	712.08	709.35	709.63	708.50	707.89	707.46	708.22	711.53	*b* 712.01
7	711.97	713.18	715.58	712.08	719.35	708.63	717.38	718.60	719.93	721.57	722.18	723.55
8	722.97	722.50	721.69	721.27	719.92	720.17	720.07	720.57	721.70	724.70	729.55	*c* 733.78
9 . . . .*	737.72	744.71	740.13	734.35	739.12	746.13	753.28	753.63	750.88	745.83	738.13	735.63
10	734.10											

Bemerkungen.

Umstände wie früher.
* Störung durch einen Reiter.
† Es halte sich der Stand um etwa 0.5*mm*. durch die ⊙ verzogen.

a Gerling. *d* Schmidt. *f* Kummel.
b Medler. *e* Seibert. *g* Möhl.
c Schubart.

Zeitbestimmung.

	h. m.	h. m. s.
22 November	3 40 Uhr Z.	= 3 34 11.5 M. Z.
23 November	20 20	= 20 14 13.2

OBSERVATIONS

OF

THE DECLINATION MAGNET,

AT SHORT INTERVALS,

ON THE

FIRST DAY OF EACH MONTH, FROM 17 TO 18 HOURS MEAN GÖTTINGEN TIME,

AT

MARBURG, (IN HESSE:)

Göttinger zeit.	Decem'r, 1849.	Januar, 1850.	Februar, 1850.	Marz, 1850.	April, 1850.	Mai, 1850.	Juni, 1850.	Juli, 1850.	August, 1850.
h. m.									
17 0.0	. . .	590.54	580.32	594.43	591.34	596.78	578 40	565.35	574.09
2.5	. . .	589.93	581.70	595.38	591.13	596.86 :	578.29	556.53 ::	575.87
5.0	557.91 :	589.19	581.91	596.01	591.18	597.13	578.07	565.96 :	573.35
7.5	560.43 :	588.23	582.25	596.03	590.48 :	597.81	571.82	566.67 :	574.86 :
10.0	560.02	587.85	582.16	596.07	589.74 :	597.68	578.44	567.40	576.16
12.5	560.56	587.33	582.08	595.21	589.13	597.67	578.78	567.46	576.07
15.0	563.66 :	587.47	583.13	594.23 :	589.57 :	598.08	579.05	567.81	576.39
17.5	566.91	586.56	581.59	592.37	588 73	597.93	579.79	568.79	576.78
20.0	568.32 :	586.06	580.82	592.03	587.81	598.13	579.85	569.17	577.28
22.5	571.30	585.76	580.52	592.06	586.90	598.50	580.42	569.43 :	577.38
25.0	571.49	585.33	581.18	592.40	587.90 :	598.84	581.82	570.45	577.21
27.5	571.40	585.12	580.51	592.65	589.56	599.14	583.39 :	571.98	577.34
30.0	570.47 :	584.13	579.78	592.68	591.41 :	599.52	584.35	572.71 :	577.10
32.5	569.55 :	583.84	581.40	592 60	591.55	599.36	584.52	574.09 :	576.97
35.0	566.43 :	583.75	582.66	593.26	591.71	599.24	585.09 :	575.26	576 90
37.5	563 22 :	583.37	582.19	594.07	592.63 :	599.39	586.61 :	576.83	576.92
40.0	558.73 :	582.75	580.76 :	594.73	592.90	599 64	587.93 :	577.61	576 74
42.5	555.55 :	582.64	579.68	593.83	594.12 :	600 16	588.30	577.63	577.00
45.0	554.72	582.15	580.89 :	593.19	595.15	600.81	590.04	577.72	577.89
47.5	555 73 :	581.98	582.56	591.77	597.29 :	601.28	590.40	577.78	577.62
50.0	554.54 :	582.33	582.98	591.08	598.85	601.48	589.73	577.82	578.33
52.5	557.55 :	582.64	583.33	590.54	600.35	602.05	589.86	578.08	579.95
55.0	560.17	582.03	583.93	591.08	601.32	602.05	590.33	578.20	580.83 :
57.5	561.98 :	581.38	584.74	590.98	602.63 :	601.91	590.13	578.07 :	581.79
18 0.0	566.43	581.73	586.28	590.73	603.79 :	602.64	591.01	578.25 :	582.65

AM JAHRE, 1851.

Göttinger Zeit.	Januar.	Februar.	Maerz.	April.	Mai.	Juni.	Juli.	August.	Sept'r.	October.	Nov'r.	Dec'r.
h. m.												
17 0.0	. . .	. . .	636 66	. . .	. . .	. . .	641.36	643.44	639.99	. . .	651.06	654.03
2.5	. . .	. . .	636.82	. . .	. . .	. . .	641.05	643.61	640.44	. . .	650.98	653.65
5.0	. . .	. . .	637.68	. . .	. . .	. . .	641.15	643.79	640.45	. . .	650.99	653.77
7.5	. . .	. . .	637.21	. . .	. . .	. . .	641.28	643.70	*638.94::	. . .	651.04	653.57
10.0	. . .	. . .	637.85	. . .	. . .	. . .	641.11	643.81	640.55	. . .	651.23	653.43
12.5	. . .	. . .	638.10	. . .	. . .	. . .	641.16	643 95	641.18	. . .	651.22	652.33
15.0	. . .	. . .	638.35	. . .	. . .	. . .	641.03	644.49	641.89	. . .	651.13	653.26
17.5	. . .	. . .	638.85	. . .	. . .	. . .	641.40	644.64	641.47	. . .	651.25	652.72
20.0	. . .	. . .	638.32	. . .	. . .	. . .	641.32	644.27	641.83	. . .	651.35	652.49
22.5	. . .	. . .	638.41	. . .	. . .	. . .	641.23	644.27	641.92	. . .	651.81	651.99
25.0	. . .	. . .	639.63	. . .	. . .	. . .	641.26	644.59	642.13	. . .	651.79	652.13
27.5	. . .	. . .	638.66	. . .	. . .	. . .	640.61	644.89	642.60	. . .	652.00	652.93
30.0	. . .	. . .	638.16	. . .	. . .	. . .	640.59	644.65	642.48	. . .	651.95	653.88
32.5	. . .	. . .	638.33	. . .	. . .	. . .	640.48	644.62	642.42	. . .	651.89	654.35
35.0	. . .	. . .	638.84	. . .	. . .	. . .	640.33	644.81†	642.48	. . .	651.93	655.27
37.5	. . .	. . .	639.57	. . .	. . .	. . .	640.31	645.05	642.29	. . .	652.18	655 57
40.0	. . .	. . .	639.42	. . .	. . .	. . .	639.45	645.81	642.23	. . .	652.07	655.62
42.5	. . .	. . .	639.15	. . .	. . .	. . .	639.30	645.79	642.38	. . .	652.07	655.49
45.0	. . .	. . .	638.43	. . .	. . .	. . .	639.41	646.89	642.28	. . .	651.96	655.92
47.5	. . .	. . .	638.87	. . .	. . .	. . .	639.18	646.98	642.17	. . .	651.93	655.86
50.0	. . .	. . .	638.85	. . .	. . .	. . .	639.73	647.43	642.18	. . .	651.86	655.87
52.5	. . .	. . .	638.86	. . .	. . .	. . .	639.44	647.98	642.07	. . .	651.87	655.44
55.0	. . .	. . .	638.78	. . .	. . .	. . .	639.58	647.80	642.03	. . .	651.93	654 97
57.5	. . .	. . .	638.72	. . .	. . .	. . .	639.37	647.81	642.00	. . .	651.92	655.38
18 0.0	. . .	. . .	638.46	. . .	. . .	. . .	639.24	647.78	*641.09:	. . .	651.89	655.93

Bemerkungen.

* Störung vergl. Protocoll.

† Im Protocoll ist eine unbetende Störung bemerkt.

AM JAHRE, 1852.

Göttinger Zeit.	Januar.	Februar.	Marz.	April.	Mai.	Juni.	Juli.	August.	Sept'r.	October.	Nov'r.	Dec'r.
h. m.												
17 0.0	665.49	672.44:	677.64	661.34	643.95	. . .	700.17	. . .	690.22::	696.98		
2.5	665.21	672.22:	678.18	661.50	643.55	. . .	701.16	. . .	687.55::	695.32		
5.0	665.45	671.58	678.66	661.07	644.22:	. . .	701.26	. . .	687.32::	696 78		
7.5	665.53	672.23	679.82	661.99	645.23	. . .	701.69	. . .	686.45	694.93		
10.0	665.83	672.15	680.62	661.31	646.16	. . .	700.39::	. . .	687.13	693.66		
12.5	666.07	672.16	680.68	661.83	643.73::	. . .	702.10:	. . .	. . .	692.79		
15.0	666.68	672.00	680.90	662.56	647.04::	. . .	702.58	. . .	687.51	692.56		
17.5	665.71	672.48	679.57	663 36	646.39:	. . .	702.44	. . .	687.81	692.01		
20.0	666.05	672.53	679.36	663.63	646.62	. . .	703.23	. . .	687.42	691.85		
22.5	666.43	672.81	680.00	663.77	647.97:	. . .	704.65	. . .	688.40	693.34		
25.0	666.88	673.14	680.25	663.89	648.41	. . .	705.05	. . .	688.18	693.32		
27.5	667.47	673.75	680.05	663.90	649.63	. . .	705.87	. . .	688.11	692.68		
30.0	667.50	674.88	679.98	663.90	649.22	. . .	706.19	. . .	688.76	692.56		
32.5	669.97	674.77	680.36	663.93	650.36	. . .	707.04	. . .	688.73	692.58		
35.0	668.06	673.52	680.13	664.43	651.19	. . .	707.43	. . .	689.39	692.80		
37.5	668.24	674.73	681.16	664.28	652.40	. . .	707.03	. . .	689.24	692.63		
40.0	667.71	674.78	680.50	664.69	652.95	. . .	706.37	. . .	689.87	692.96		
42.5	667.60	675.38:	680.47	664.63	654.20	. . .	706.88	. . .	691.89	692.96		
45.0	668.32	676.72::	680.50	665.09	655.16	. . .	707.60	. . .	691.57::	693.11		
47.5	667.97	678.98:	680.97	664.92	656.82	. . .	707.68	. . .	691.61:	692.74		
50.0	667.76	678.92:	680.19	665.10	657.71	. . .	707.41	. . .	692.90::	693.04		
52.5	667.78	680.05	680.61	665.70	657.28	. . .	706.86	. . .	692.26:	692.39		
55.0	667.70	679.91	680.75	665.27	655.70:	. . .	706.51	. . .	694.18:	691.93		
57.5	668.11	678.73:	680.81	665.92	657.78	. . .	706.13	. . .	694.95	691.44		
18 0.0	667.42	677.89::	681.42	666.40	657.05	. . .	706.09	. . .	695.63	692.07		

METEOROLOGICAL OBSERVATIONS

AT

SANTIAGO DE CHILE,

FROM NOVEMBER 17, 1849, TO SEPTEMBER 14, 1852,

BY THE

U. S. NAVAL ASTRONOMICAL EXPEDITION.

METEOROLOGICAL OBSERVATIONS

AT

SANTIAGO DE CHILE,

DURING THE YEAR 1849.

SYMBOLS.

FORCE OF WIND.—0, denotes calm; 1, light air; 10, a strong gale.
CLOUDS.—C., denotes cirrus; K., cumuli; S., stratus; C. K., cirro-cumulus; C. S., cirro-stratus, &c.

NOVEMBER, 1849.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.					WINDS.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Register. Black.	Register. Sky.	Direction.	Force		
		Inches.	°	°	°	°	°				
17	3 A. M.	28.164	64.0	62.5	54.5						
	6	.158	62.0	63.5	55.5						
	9	.184	65.0	66.5	63.0	110.0	67.0			C. 1 . . .	About the horizon.
	Noon.	.180	69 0	74.5	67.0	126 0	79.5			C. 2 & K. 1.	
	3 P. M.	.154	72.3	79.0	69.5	118.4	79.4	S.S.W. . .	3	C. 2 . . .	
	6	.176	72.5	74.5	66.0	89.3	74.0	S. by W. .	2	C. 0.5 . .	
	9	.194	70.0	67.5	63.0			South . .	2	0	
	Midn't.	.160	67.5	62.0	56.5			South . .	2	0	Max. temp., 76°.8; min., 51°.5.
18	3 A. M.	.136	67.5	58.6	54.5			Airs . . .	1	0	
	6	.128	67 0	65.0	55.5	81.5	55.0	N.E. . . .	1	K. 2 . . .	At 6 A. M. an earthquake shock. The motion was slight, and unaccompanied by noise other than the creaking of the ceiling. Possibly because of improper adjustment, neither of the seismometers indicated the tremor.
	9	.116	66.5	65.5	63.0	93.0	69.0	N. by E. .	1	C. S. 5 . .	
	Noon.	.106	69.5	70.5	67.5	111.0	77.5	S.W. . .	2	C. S. 1 . .	
	3 P. M.	.090	71.5	79 5	69.5	106 0	79.0	S.W. . .	2	C. S. & K. 2	
	6	.086	71.0	72.5	66.5	75.5	67.7	S.W. . .	1.5	C. S. & C. K.1	
	9	.096	67.5	64.7	61.2			Calm . .	0	C. & C. S. 1.	
	Midn't.	.070	65.0	61.0	57.7			Calm . .	0	0	Max. temp., 79°.5; min., 56°.5.
19	3 A. M.	.074	66.5	57.5	56.2			Calm . .	0	C. S. 4 . .	
	6	.116	63.5	55.4	53.7	68.7	51.0	W.S.W. .	3	C. S. 5 . .	Atmosphere about the mountains so hazy as entirely to prevent them from being seen. The haze resembles clouds of dust.
	9	.144	63.5	64.0	61.8	100.0	63 2	S.W. . .	2.5	C. K. 4 . .	
	Noon.	.144	67.5	67.7	63.5	94.0	71.8	South . .	3	C. K. 7 . .	
	3 P. M.	.148	68.4	70.6	65.0	102,5	72.0	W.S.W. .	3	C. K. 8 . .	
	6	.182	66.5	65.5	62.0	(2,0	63.0	S.S.W. . .	2	K. 9 . . .	
	9	.200	65.0	63.3	61.0			S.S.W. . .	3	K. 9.5 . .	Heavy.
	Midn't.	.200	64.3	61.4	59.3			Southward .	0.5	K. 7 . . .	Max. temp., 75°.0; min., 53°.0.
20	3 A. M.	.194	65.8	60.5	58.5			Calm . .	0	K. 10 . .	
	6	.200	64.5	59.7	58.2		57.7	S.W. . .	0.5	K. 10 . .	
	9	.222	62.5	60.5	59.3	65.5	60.5	S.E. . . .	1	C.K. & K.S.10	
	Noon.	.230	64.5	65.8	62.5	80 0		S.W. . .	2	C. K. 6 . .	
	3 P. M.	.238	67.0	69.3	64.0	104.0	72.0	Easterly .	2	C. K. & C. 7.	At 4h. 40m. P. M., a few drops of rain. When the clouds lifted, the near peaks of the cordilleras were seen covered with snow quite low down.
	6	.254	67.0	66.0	62.5		65.8	S'd and W'd	2	K. 7 . . .	
	9	.280	66.0	63.3	61.0			Calm . .	0	K. & C. K. 3.	
	Midn't.	28.254	64.5	60.0	58.2			N'd and W'd	1	0	Max. temp., 71°.0; min., 53°.0.

NOVEMBER, 1849—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Register.		Direction.	Force.		
						Black.	Sky.				
		Inches.	°	°	°	°	°				
21	3 A. M.	28.242	65.5	58.5	56.7			Easterly .	1	0	
	6	.242	62.8	56.8	55.6	82.5	52.5	N'd and E'd	1	0	
	9	.220	64.0	61.3	59.4	105.5	63.0	N'd and E'd	1	0	
	Noon.	.200	63.4	67.4	62.5	114.0	74.0	N'd and E'd	0.5	K. 1.5 . .	
	3 P. M.	.174	68.0	71.9	65.0	112.0	76.5	S.S.W. . .	1	K. 1 . . .	
	6	.174	69.0	71.0	64.2	80.0	70.5	Southward .	1.5	K. 1 . . .	
	9	.194	67.0	65.5	61.2			Southward .	1	0	
	Midn't.	.156	64.7	61.5	55.2			S'd and W'd	2	0	Max. temp., 76°.7; min., 55°.7.
22	3 A. M.	.172	64.5	59.0	56.2			Southerly .	2	0	
	6	.174	64.0	57.5	58.2		55.3	Calm . .	0	0	
	9	.170	64.0	62.8	59.8	99.0	67.5	Calm . .	0	0	
	Noon.	.144	62.5	69.5	63.5	109.5	78.5	N. westerly	1	0	
	3 P. M.	.118	70.0	75.5	66.5	117.0	80.8	N. westerly	1.5	0	
	6	.114	71.2	74.0	66.0	85.5	74.7	Calm . .	0	0	
	9	.108	69.0	69.2	64.5			Calm . .	0	0	
	Midn't.	.076	76.8	76.2	68.2			N. by W. .	2	0	Max. temp., 75°.0; min., 57°.5.
23	3 A. M.	.056	67.0	67.3	58.5			Northerly .	1	0	
	6	.066	63.5	61.0	60.2	87.5	57.6	Northward .	1	0	
	9	.076	67.0	66.6	63.0	111.2	70.0	Northward .	1	0	
	Noon.	.102	70.2	74.6	67.0	107.5	83.0	S.S.W. . .	2	K. 1 . . .	
	3 P. M.	.102	73.7	79.3	71.0	125.0	85.0	S.S.W. . .	2	K. 1 . . .	
	6	.106	76.1	77.4	69.4	89.8	76.5	Southerly .	2	K. 1 . . .	
	9	.132	72.0	72.0	65.8			Calm . .	0	0	
	Midn't.	.104	69.5	72.5	62.4			Westward .	2	0	Max. temp., 78°.7; min., 61°.0.
24	3 A. M.	.084	68.0	64.6	61.5			Westward .	1	0	At noon sky clear, except some small C. to the SE. The 3 P. M. observations half an hour late. Sky clear, except over the mountains to the east, where there are heavy cumuli. Two distinct earthquake shocks were experienced, of an undulatory character, accompanied by a rumbling noise apparently coming from the SW. The first was at 9h 19m. P. M., and continued only 3s.; the second at 9h. 19m. 8s. P. M., and lasted 7s.
	6	.106	66.5	63.3	60.2	81.5	60.7	Calm . .	0	0	
	9	.122	67.6	67.5	63.5	106.5	72.5	Westward .	1	C. S. 0.5 .	
	Noon.	.132	71.0	73 3	67.3	111.0	80.5	Westward .	1	0	
	3 P. M.	.108	73.5	79.3	71.3	104.5	83.0	Westward .	2	K. 1 . . .	
	6	.166	74.0	77.5	71.3	85.5	77.8	Westward .	1	K. & C. 1 .	
	9	.134	72.5	73.2	68.8			N. westerly	1	0	
	Midn't.	.134	70.5	69.0	64.7			Calm . .	0	0	Max. temp., 79°.3; min., 62°.0.
25	3 A. M.	.084	68.0	67.0	64.5			Westward .	1	0	
	6	.100	67.3	65.0	62.8	81.5	65.6	Westward .	1	0	
	9	.116	69.3	69.4	66.4	112.0	73.5	Westward .	1	0	
	Noon.	.106	74.2	75.5	69.6	107.0	83.0	S.S.W. . .	2	0	NW. slight K.
	3 P. M.	.100	79.0	80.2	73.0	118.0	85.0	Southward .	2	C. K. 1 . .	
	6	.100	78.0	78.5	73.4	80.0	78.2	Southward .	2	K. S. 1 . .	
	9	.100	74.0	74.3	70.4			Southward .	1	K. 4 . . .	
	Midn't.	.078	72.0	70.5	66.2			S.S.W. . .	1	C. 2 . . .	Max. temp., 80°.2; min., 63°.0.
26	3 A. M.	.054	70.0	66.5	66.0			Southerly .	1	0	
	6	.118	68.5	65.2	62.8	93.0	61.8	Calm . .	0	0	
	9	.136	69.8	70.0	67.4	110.5	72.7	N. westerly.	1	C. S. & C. K. 1	
	Noon.	.128	72.5	75.5	71.0	109.5	78.8	Westward .	1	K. & C. K. 2	
	3 P. M.	.130	73.7	77.2	72.2	113.5	78 5	S.W. . .	1	K. & K. S. 3	
	6	.160	73.5	74.3	70.3	80.0	72.0	S.W. . .	2	C. & C. K. 7	At 9 P. M. a halo around the moon; faint and indistinct.
	9	.204	70.5	69.7	67.3			E. . . .	1	C. & C. K. 5	
	Midn't.	.164	76.8	68.0	66.5			Calm . .	0	C. 2 . . .	Max. temp., 79°.5; min., 64°.5.
27	3 A. M.	.144	67.8	65.0	63.7					C. S. 2 . .	At 6 A. M., 9 A. M., and noon a few clouds over the mountains. At 6, heavy stratum of clouds over the sides of the mountains between the base and summit.
	6	.182	69.0	64.5	63.7	70.0	60.5	Calm . .	0	C. S. 7 . .	
	9	.176	68.2	68.0	66.2	107.0	69.5	S'd and W'd	1	C. S. 6 . .	
	Noon.	.170	71 0	72.5	69.5	100.5	77.2	Southerly .	2	C. & K. S. 4.	
	3 P. M.	.160	72.5	72.2	70.7	112.5	78.5	Southward .	3	C. & K. S. 5.	
	6	.166	73.4	74.2	70.8	81.7	73.0	S'd and W'd	2	C. & K. S. 4.	
	9	.210	69.3	69.8	67.3			S'd and W'd	2	C. 2 . . .	Slight cumuli over the mountains.
	Midn't.	28.202	67.4	67.0	66.0			Calm . .	0	S. 2 . . .	Max. temp., 80°.2; min., 65°.0.

NOVEMBER, 1849—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Register. Black.	Register. Sky.	Direction.	Force.		
		Inches.	°	°	°	°	°				
28	3 A. M.	28.184	67.2	65.0	63 1			Calm . .	0	0	At noon a few cumuli, principally over the cordilleras; 3 P. M., large white cumuli over the mountains to the east.
	6	.182	66.3	63.5	63.0	84.0	60.7	Calm . .	0	0	
	9	.176	68.8	68.7	67.2	109.5	71.5	S. westward	1	0	
	Noon.	.164	73.4	74.3	71.0	112.0	82.2	S. westward	1	K. 1 . . .	
	3 P. M.	.152	77.5	80.3	75.3	116.0	79.8	Westerly .	1	K. 1 . . .	
	6	.160	77.5	78.0	73.5	87.5	78.8	Westerly .	1	K. 1 . . .	
	9	.182	73.0	73.5	70.2			S. westerly	1	0	
	Midn't.	.188	71.0	69.5	66.8			N. westerly	1	0	Max. temp., 79° 5; min., 64°.0.
29	3 A. M.	.190	70.0	67.0	65.3			N. westerly	1	0	Slight K. over mountains and C. overhead; 3 P. M., heavy S. over mountains to the northward and eastward; 6 P. M., K. over mountains to the northward, slight.
	6										
	9	.230	70.0	69.7	67.7	112.0	74.0	Southward .	1	0	
	Noon.	.246	74.4	76.0	71.8	112.5	81.0	S.S.W. . .	2	C. K. 2 . .	
	3 P. M.	.240	78.0	79.9	73.2	119.5	85.7	South . .	3	C. S. 1 . .	
	6	.230	77.0	77.7	72.6	86.0	79.5	Southward .	2	K. 1 . . .	
	9	.230	73.5	73.2	69.0			Southward .	1-	0	
	Midn't.	.222	70.4	69.0	65.7			Westward .	1	0	Max. temp., 80°.5; min., 65°.5.
30	3 A. M.	.200	67.8	66.5	63 8			S'd and W'd	1	C. K. 1 . .	6 A. M., sky clear, with a few C. S. to the south.
	6	.200	67.8	65.0	63.3	76.5	63.0	Calm . .	0	0	
	9	.196	69.7	69.0	65.3	108.0	72.3	Westerly .	1	C. S. 2 . .	
	Noon.	.176	74.0	74.8	69.0	111.0	80.5	Westerly .	1	C. 2 . . .	
	3 P. M.	.144	77.6	78.5	72.0	120.0	83.5	Westerly .	1	K. & C. 2 .	
	6	.140	77.8	78.0	71.5	98.0	79.0	S.W. . .	1	K. & C. 1 .	
	9	.162	72.5	72.5	68.3			N.E. . .	1	0	
	Midn't.	28.142	70.0	69.0	66.3				0	0	Max. temp., 79°.2; min, 63°.5.

DECEMBER, 1849.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Register. Black.	Register. Sky.	Direction.	Force.		
		Inches.	°	°	°	°	°				
1	3 A. M.	28.196	68.5	66.5	54.0			N. eastward	1	0	
	6	.160	67.2	64.7	56.3	88.5	60.0	N'd and E'd	1	0	
	9	.176	69.8	68.8	57.4	103.0	72 0	N. easterly .	1	C. S. 2 . .	
	Noon.	.170	73.0	75.5	61.9	115.0	83.2	Southward .	2	K. S. 1 . .	
	3 P. M.	.144	47.0	80 0	61.5	116.5	84.4	Southward .	3	C. S. 2 . .	
	6	.150	76.2	76.8	61.5	87.4	74.5	S.S.W. . .	2	C. K. 4 . .	
	9	.152	71.2	72.0	57.4			Southward .	1	0	Slight S. to southward.
	Midn't.	.130	70.0	69.3	55.3			Doubtful .	1	0	Max. temp., 80°.6; min., 63°.7.
2	3 A. M.	.100	69.0	65.7	57.6			Calm . .	0	0	3 A. M., calm and clear; slightly hazy over the mountains. 6 A. M., the minimum "sky" for the past night was found to be 56°.6. 9 P. M., many flashes of heat lightning over the Andes to the east. Midnight observations taken 15 minutes after time.
	6	.120	67.5	64.2	56.9	75.0	59.8	Calm . .	0	C. S. 1 . .	
	9	.118	69.5	69.0	58.5	108.5	72.5	Calm . .	0	C. S. & C. K. 2	
	Noon.	.196	73.0	75.5	61.5	110.5	81.8	S.W. by S. .	1	K. & C. 2 .	
	3 P. M.	.116	76.3	80.3	61.7	112.5	83 0	S.W. . .	2	K. & C. 3 .	
	6	.194	79.8	76.3	59.4		74.2	S.W. . .	1	K. & C. 5 .	
	9	.156	69.0	71.5	56.2			E. . . .	1	S. 1 . . .	
	Midn't.	28.156	67.0	67.2	54.9			S.W. . .	1	C. 1 . . .	Max. temp., 79°.5; min., 63°.5.

DECEMBER, 1849—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Register. Black.	Register. Sky.	Direction.	Force.		
		Inches.	°	°	°	°	°				
3	3 A. M.*	28.136	65 5	65.2	54.6			S.W. . .	1	C. S. 3 . .	
	6	.150	65.9	62.2	52.5	76.5	54.0	S. westward	1	0	
	9	.154	67.5	66.5	54.7	107.5	68.0	Calm . .	0	K. 1 . . .	
	Noon.	.060	70.5	74.2	63.0	112.5	79.0	S. and W. .	2	K. S. 2 . .	
	3 P. M.	.110	74.5	76.5	63.0	107.5	80.2	Southward .	2	K. S. 3 . .	
	6	.116	71.2	72.5	59.0		68.0	S'd and W'd	2	K. S. & C. 4	
	9	.152	67.5	67.5	57.4			N'd light .	1	S. 8 . . .	
	Midn't.	.158	66.1	63.5	53.4			Very light .	0	K. S. 1 . .	Max. temp., 76°.6; min., 59°.7.
4	3 A. M.†	.122	67.2	50.5	54.5			Very light .	0	K. S. 2 . .	
	6	.108	64.0	59.3	51.3		54.0	Calm . .	0	C S.S.C.K. 10	
	9	.112	63.5	61 0	53.8		59.0	W. . . .	1	K. & S. 10 .	
	Noon.	.124	65.0	63.0	53.6		61.0	Calm . .	0	K. & S. 10 .	
	3 P. M.	.046	65.0	63.3	55.2		61.6	Calm . .	0	K. & C. K. 10	
	6	.040	65.5	61.3	52.9		59.3	N.W. . .	2	K. & C. K. 10	
	9	.150	62.8	60.5	53.4			N.E. . . .	1	K. 10 . .	
	Midn't.	.154	62.0	57.5	51.5			N.E. . . .	1	K. (?) 10 .	Max. temp., 64°.5; min., 58°.8.
5	3 A. M.	.144	60.0	56.3	50.6			N.W. . .	1	K. & S. 10 .	
	6	.150	61.0	55.2	50.9		54.5	W.N.W. .	1	K. & S. 7 .	
	9	.190	61.0	55.2	54.0			Westward .	1	K. S 8 . .	
	Noon.	.170	63.2	62.0	56.3	100.7	64.5	S'd and W'd	1	K. & S. 6	
	3 P. M.	.175	65.0	65.0	56.7			W.S.W. .	3	K. & S. 7 .	
	6	.178	65.0	64.5	55.4	88.0	63.5	Southward .	1	S. & K. 4 .	
	9	.220	63.5	61.8	56.7			Southward .	2	0	
	Midn't.	.210	61.4	58.5	52.2			Southward .	1	0	Max. temp., 65° 2; min., 52°.5.
6	3 A. M.	.204	60.0	56.5	52.2			Southward .	1	0	At noon and at 3 P. M. slight cirrus clouds over the mountains and directly overhead; also some cumuli on the Andes at 3 P. M. 6 P. M. slight K. over the mountains.
	6	.214	59.8	55.5	51.8	71.0	52.0	Calm . .	0	0	
	9	.202	61.5	60.2	53.1	97.5	62.8	Calm . .	0	0	
	Noon.	.208	66.0	66.3	53.6	101.5	74.3	S.W. . .	1	C. 1 . . .	
	3 P. M.	.190	71.5	70.8	54.0	111.5	77.0	S. by E. .	1	C. and K. 1	
	6	.176	71.5	70.5	56.5		72.3	S.E. . . .	1	0	
	9	.182	67.0	66.2	56.5			Southerly .	1	0	
	Midn't.	.148	65.0	63.3	52.0			Calm . .	0	0	Max. temp., 71°.2; min., 55°.0.
7	3 A. M.	.112	63.0	60.0	51.8			Calm . .	0	0	The 6 A. M. observations were not taken till 6h. 54m.—the observer not having been called in time. Min. sky for night 57°.3. 9 P. M. observations equally late. 6 P. M., very slight C. K. over the mountains to the east.
	6	.134	62.0	58.8	53.1	78.5	58.0	Calm . .	0	0	
	9	.130	64.8	63.7	56.1	108.2	68.7	Northerly .	1	0	
	Noon.	.140	75.0	71.0	59.9	117.5	79.0	S'd and W'd	2	0	
	3 P. M.	.110	75.5	76.7	58.5	120.0	85.0	Southward .	2	0	
	6	.094	76.5	76.5	60.3	93.7	77.5	Southward .	1	0	
	9	.100	72.6	72.0	59.9			Southward .	1	0	
	Midn't.	.064	69.5	68.5	57.2			South . .	1	0	Max. temp., 77°.8; min., 54°.8.
8	3 A. M.	.048	57.2	66.4	56.3			Southward .	1	0	Minimum sky for night 52°.5.
	6	.054	66.0	65.3	59.2		65.8	Calm . .	0	0	
	9	.070	70.0	60.5	60.8	108.0	74.5	S.W. . .	1	0	
	Noon.	.074	74.5	74.5	62.2	107.5	82.0	S.W. . .	1	0	
	3 P. M.	.062	77.7	78.2	63.7	112.0	83.0	S.W. . .	3	K. 1 . . .	
	6	.042	75.0	76.0	61.5		74.8	S.W. . .	2	0	
	9	.064	70 0	70.8	59.7			Southerly .	1	0	
	Midn't.	.054	68.5	67.7	55.4			S. easterly .	1	0	Max. temp., 80°.0; min., 65°.0.

*3 A. M., halo around the moon. 6 and 9 A. M., heavy K. S. to the northward. At noon and 3 P. M., heavy K. S. over the mountains to the northward. 6 P. M., sky threatening, heavy dark S. clouds to the northward. Sun partly obscured. 9 P. M., sky almost wholly overclouded with singular streaks of white strata on heavy black ground running from about W. by N. to E. by S. Midnight clear; air so light as not to be able to distinguish its direction.

†3 A. M., K. S. over the mountains. The minimum sky for the night was 50°.3. 3 P. M., some few drops of rain, lasting only a few moments; more at 4 P. M. 6 P. M., clouds beginning to lift from the mountains, showing heavy snow on the Andes to N.E. Midnight observations 10 minutes late. Sky so dark as to render the form of the clouds undistinguishable. The occasional showers beginning at 3 P. M. became heavier about dark, and from 9 P. M to midnight there was continuedr ain.

DECEMBER, 1849.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Register. Black.	Register. Sky.	Direction.	Force.		
		Inches.	°	°	°	°	°				
9	3 A. M.	28.030	66.3	65.0	56.3			Calm . .	0	0	
	6	.036	65.2	64.0	55 4	85.0	62.0	Southerly .	1	0	
	9	.042	67.7	67.5	61.7	110.5	69.8	Southerly .	1	0	
	Noon.	.034	71.0	73.6	62.8	113.5	80.5	S.S.W. . .	2	K. 1 . . .	
	3 P. M.	.016	73.0	76.8	61.7	112.5	79 5	S.S.W. . .	3	K. 1 . . .	
	6	.010	72.5	74.2	62.0	85.2	74.0	South . .	1	K. 1 . . .	
	9	.094	67.5	69.0	59.0			Southward .	2	0	
	Midn't.	.010	66.0	66.0	59.0			Southward .	1	0	Max. temp., 63°.5; min., 59°.0.
10	3 A. M.	.014	65.0	64.2	57.6			S.S.W. . .	1	0	6 A. M., no wind; air misty; sun obscured. Minimum sky for night, 53°.0; minimum black bulb, 59°.8. 9 A. M., K. close round the horizon at the base of the mountains. Sky otherwise clear.
	6	.040	62.0	61.5	56.3		57.2	Calm . .	0	Misty . .	
	9	.046	64.0	64.5	58.7	99.0	65.2	S.W. . .	1	K. 3 . . .	
	Noon.	.060	68.5	71.5	63.4	105 5	76.5	S.W. . .	1	K. 2 . . .	
	3 P. M.	.074	73.0	75.5	63.9	120.5	78.0	S.W. . .	2	K. 3 . . .	
	6	.078	73.0	74.3	63.3		74.2	S.W. . .	1	K. 1 . . .	
	9	.110	69.5	69.3	58 3			S.E. . . .	1	0	
	Midn't.	.104	68.5	67.4	59.4			W. . . .	1	0	Max. temp., 82°.8; min., 60°.3.
11	3 A. M.	.062	67.3	64.7	57 2			S.E. . . .	1	0	Minimum sky for night, 58°.; black bulb, 59°.0.
	6	.094	65.0	63.7	60.6		60.5	Calm . .	0	0	
	9	.116	69.2	69.5	62.2	107.5	72.5	Calm . .	0	0	
	Noon.	.110	71.5	74.5	64.6	124 7	82 0	Southward .	1	K. 1 . . .	
	3 P. M.	.080	74.2	79.0	64.0	118.0	85.5	S. . . .	1	K. 1 . . .	
	6	.060	75.0	78.5	65.7		80.4	S. . . .	1	K. 1 . . .	
	9	.010	72.2	73.0	59.9			S. . . .	1	0	
	Midn't.	.068	70.3	70.3	58.5			W. . . .	1	0	Max. temp., 79°.3; min., 64°.5.
12	3 A. M.	.056	67.4	67.0	56.5			S'd and W'd	1	0	6 A. M., minimum of sky for night, 59°.7; of black bulb, 64°.5. 9 A. M. the black bulb thermometer was broken in taking this observation. From 6 to 12 P. M. occasional flashes of lightning over the Andes.
	6	.062	67.5	66.0	57.4		63.9	Calm . .	0	0	
	9	.094	69.7	70.0	60.1	109.0		Calm . .	0	0	
	Noon.										
	3 P. M.	.058	79 3	80.8	63.9		86.5	S.W. . .	2	K. & C. 2 .	
	6	.042	78.5	79 2	62.0		80.0	N.W. . .	1	C. & K. 1 .	
	9	.042	73.0	73.7	57.2			N.E. . .	1	0	
	Midn't.	.050	71.0	70.7	56.1			N.W. . .	1	0	Max. temp., 80°.7; min., 64°.5.
13	3 A. M.	.046	70.5	67.5	53.4			N.W. . .	2	0	3 A. M. sky clear, with a few S. about the horizon. Minimum sky for night 58°.9. 9 o'clock observations 10 minutes late. The cause of discordant temperatures of air thermometer at 3 and 6 P. M. was that the door of the passage in which it stands was closed. The thermometer up stairs marked "standard" stood above 80°.0.
	6	.074	68.2	66.2	59.4		64 5	Calm . .	0	C. 3 . . .	
	9	.090	71.2	71.0	60.8		74 0	Westward .	2	C. K. 4 . .	
	Noon.	.088	75.0	76.0	61.7		84.5	S.S.W. . .	3	C. & K. 6 .	
	3 P. M.	.058	79.7	76.0	66.6		86.5	S.S.E. . .	2	C. & K. 2 .	
	6	.040	79.2	78.4	63.5		80.7	Southward .	2	C. 5 . . .	
	9	.052	75.0	74.7	61.7			Southward .	1	S. 2 . . .	
	Midn't.	.050	71.0	71.0	57.2			N'd and W'd	2	0	Max. temp., 78°.5; min., 65°.4.
14	3 A. M.	.050	71.0	69.0	57.2			N'd and W'd	2	0	Minimum sky for the night 62°.0. 9 A. M. a few scattered cumuli over mountains. 3 P. M. K. over mountains. 6 P. M. slight K. over the Andes to the east.
	6	.110	70.0	67.8	58.5		66.8	N. by W. .	1	0	
	9	.122	71.3	71.2	60.1		74.0	Northerly .	1	0	
	Noon.	.152	75.2	76.5	60.3		81 8	W. . . .	2	K. 2 . . .	
	3 P. M.	.167	78.0	80.0	59.4		84.7	W. . . .	3	K. 2 . . .	
	6	.174	76.5	77.3	61.5		76.7	W. . . .	1	0	
	9	.210	72.2	72.7	58.5			Calm . .	0	0	
	Midn't.	.180	70.5	70.0	54.9			W. . . .	1	0	Max. temp., 80°.0; min., 66°.5.
15	3 A. M.	.152	69.5	66.3	53.6			N.W. . .	2	0	Minimum sky for night 57°.0. Observations 9 A. M. 5 minutes late. 6 P. M. few slight clouds (K.) to the eastward.
	6	.160	69 0	66.2	61.2		66.4	Northward .	1	0	
	9	.170	71.0	70.2	60.3		74.0	Northward .	1	0	
	Noon.	.178	75.0	75.2	62.2		82.5	S'd and W'd	2	0	
	3	.170	78.0	80.0	61.2		85.5	S.S.W. . .	2	K. 1 . . .	
	6	.160	79.2	79.2	65.7		80.5	S.S.W. . .	2	0	
	9	.168	73 0	73.5	59.9			Calm . .	0	0	
	Midn't.	28.150	70.5	70.0	58.5			S.W. . .	1	0	Max. temp., 80°.0; min., 64° 0.

DECEMBER, 1849—Continued.

DATE.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Stand-ard.	Wet.	Register. Black.	Sky.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches	°	°	°	°	°				
16	3 A.M.	28.140	70.2	66 5	58.1			Westward .	1	0	At 6 A. M., min. sky for night, 60°.0. 3 P. M., K. over the Andes.
	6	.180	68.8	66.8	57.2			Calm . .	0	0	
	9	.198	71.5	70.5	58.3		73.5	W. . . .	1	0	
	Noon.	.190	76.2	76.0	63.3		81.5	S.W. . .	1	0 . . .	
	3 P. M.	.152	80.5	81.7	63.0		86.2	S.W. . .	2	0	
	6	.121	81.5	80.8	65.5		84.3	S.W. . .	1	0	
	9	.136	76.8	76.0	63.7			W. . . .	1	0	
	Midn't.	.096	74.0	72.2	55.2			Northward .	1	0	Max. temp., 81°5; min., 64°.0.
17	3 A. M.	.042	71.8	69.4	56.9			Northerly .	1	0	At 6 A. M. min. sky for night, 60°.5.
	6	.056	70.5	68.0	58.3		66.0	Northward .	1	0	
	9	.060	77.0	72.7	59.2		78.2	Calm . .	0	0	
	Noon.	.064	78.7	79.5	64 4		89.2	S.S.W. . .	2	0	
	3 P. M.	.040	84.2	84.7	64.9		91.5	Southward .	3	0	
	6	.060	81.2	81.5	63.5		82.5	S.W. . .	2	0	
	9	.076	77.2	76 0	62.0			Westward .	2	0	
	Midn't.	.040	74.2	72.8	61.7			N'd and W'd	1	0	Max. temp., 83°.7; min., 67°.5.
18	3 A.M.	.010	71.4	69.5	58.1			Calm . .	0	0	Noon, K. over the Andes. 3 P. M., K. over the Andes; quite heavy; threatening a storm. 6 P. M., K. heavy over the Andes to the east. Midnight, K. to the S.E. Observations three quarters of an hour late, the observer being engaged on Santa Lucia.
	6	.064	70.8	68.5	59.0		68.0	Calm . .	0	0	
	9	.086	73.5	72.5	60.8		75.2	Westerly .	1	0	
	Noon.	.090	77 5	78.8	63.7		87.6	Westerly .	2	0	
	3 P. M.	.090	78.0	80.3	63 9		80.8	N. westerly.	2	K. 1 . . .	
	6	.098	74.2	76.3	62.0		72.8	W. . . .	1	K. 1 . . .	
	9	.140	73.7	71.3	57.6			W. . . .	1	0	
	Midn't.	.196	66.0	67.5	56.5			S.E. . . .	1	K. 1 . . .	Max. temp., 80°.2; min., 62°.8.
19	3 A.M.	.096	65.2	66.3	56.3			S.W. . .	1	K. S. 1 . .	Min. sky for night, 59°.5. 9 A. M., slight drizzling rain.
	6	.172	64.0	64.6	56.9		61.0	S.W. . .	1	10 . . .	
	9	.196	65.0	65 2	56.5			Westward .	1	K. S. 10 . .	
	Noon.	.228	66.0	66.4	61.0			S'd and W'd	1	S. 10 . . .	
	3 P. M.	.228	68.0	68.7	62.8			Southward .	3	K. & S. 8 .	
	6	.234	69.5	69.7	62 8			Southward .	2	K. & S. 3 .	
	9	.226	66.0	66.0	59.7			Southward .	1	K. & S. 9 .	
	Midn't.	.220	65.5	65.7	59.4			S.E. . . .	1	S. 9 . . .	Max. temp., 71°.5; min., 60°.2.
20	3 A.M.	.220	65.5	65.0	56.0			S.E. . . .	1	S. 10 . . .	Min. sky for night, 59°.5. Noon, C. K. around the mountains. 3 P. M., heavy cumuli coming from the N.W. 6 P. M., K. over mountains.
	6	.272	65.5	65.0	56.9		62.8	Southward .	1	K. S. 10 . .	
	9	.276	66.0	66.0	57.6		68.6	Westerly .	1	K. S. 9 . .	
	Noon.	.280	69.0	70.0	58.7		73.3	Westerly .	1	C. K. 2 . .	
	3 P. M.	.270	73.2	74.0	61.0		79.0	S.W. . .	2	K. 3 . . .	
	6	.268	73.0	73.5	59.7		72.5	S.W. . .	1	K. 1 . . .	
	9	.272	67.8	69.2	56.5			S. easterly .	1	0	
	Midn't.	.242	64.6	65.2	57.9			S'd and W'd	1	0	Max. temp., 80°.2; min., 65°.0.
21	3 A. M.	.228	65 0	63.0	52.9			S. easterly .	1	0	Min. sky for night, 55°.7.
	6	.266	*67.0	61.7	58.1		57.5	Calm . .	0	0	* Door closed.
	9	.254	66.4	64.0	59.0		66.5	Westward .	1	K. & S. 2 .	
	Noon.	.238	69.2	70.3	62.5		76.8	S.S.W. . .	2	C. & K. S. 8.	
	3 P. M.	.206	73.2	73 7	63.5		78.5	S.S.W. . .	2	K. & S. 2 .	
	6	.180	72.0	†76.2	61.2		74.9	S.W. . .	2	K. 2 . . .	† In open air.
	9	.224	70.0	67.5	57.4			Southward .	1	K. 1 . . .	
	Midn't.	.201	66.6	65.6	52.9			Southerly .	1	S. 4 . . .	Max. temp., 74°.5; min., 61°.7. Slight haze.
22	3 A.M.	.160	64.2	61.0	50.2			Westward .	1	S. 8 . . .	At 4h 2m. 35s. P. M. there were two distinct light tremblings of the earth, accompanied by a rumbling noise, apparently coming from W. S. W. The 2d tremor was evidently the more violent, though the duration of both did not exceed six seconds. Being warned by the noise at a distance, there was quite time to inspect the watch before the phenomenon occurred. J. M. G.
	6	.170	64.0	60.7	49.7			Calm . .	0	C. S. & K. S. 7	
	9	.184	65.0	63.5	52.9		64.3	S.W. . .	1	C. S. 2 . .	
	Noon.	.156	69.0	69.7	56.7		74.0	W. . . .	2	C. & K. 3 .	
	3 P. M.	.126	73.3	74.5	54.9		78.7	W. . . .	2	K. & C. 2 .	
	6	.126	74.0	74.2	55.4		76.2	W. . . .	1	K. & C. 3 .	
	9	.139	71 0	70.2	53 6			Southward .	1	C. S. 5 . .	
	Midn't.	28.136	*68.2	64.2	51.3			Southward .	1	S. 1. . .	Max. temp., 80°.2; min., 58°.7. * Door closed.

DECEMBER, 1849—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Standard.	Wet.	Register. Black.	Sky.	WIND. Direction.	Force.	WEATHER.	REMARKS.
		Inches.	°	°	°	°	°				
23	3 A. M.	28.112	65 2	61.5	49.1			Southward .	1	0	Min. sky for night, 55° 3. Midnight observations 44m. late, owing to absence of observer on other duty.
	6	.124	63.7	60.6	53.1		56.8	N'd and E'd.	1	0	
	9	.154	66.2	65.5	54.9		67.5	Calm . .	0	K. 1 . . .	
	Noon.	.170	71.2	71.6	60.1		79.5	S.S.W. . .	1	K. 1 . . .	Over mountains.
	3 A. M.	.158	75 0	75.2	62.6		84.5	S.S.W. . .	2	K. 1 . . .	Do.
	6	.154	74.6	74.5	62.4		76.0	S.S.W. . .	3	K. 1 . . .	To eastward.
	9	.200	68 7	69.4	58 2			N'd and E'd.	1	0	
	Midn't.	.176	65.6	65.5	54.7			Northward .	1	0	Max. temp., 76° 2; min., 59°5.
24	3 A. M.	.150	64.2	63.0	54.0			N.N.E. . .	1	0	6 A. M., slight C. to the south. Minimum sky for the night, 51° 5. 9 A. M., small scattered C. in all parts of the heavens, but principally to the south eastward. Noon, a few light scattered C. overhead; K. S., as usual, over the mountains.
	6	.198	63 0	62.5	50.2		60.3	S.W. . .	1	C. 1 . . .	
	9	.216	66.5	66.6	52.9		68.8	S.W. . .	1	C. 3 . . .	
	Noon.	.217	69.8	72.2	56.5		78.0	S. westerly .	1	K. S. 1 . .	
	3 A. M.	.184	75.8	76.8	59 0		82.8	Westerly .	1	K. 1 . . .	
	6	.178	75.5	76.7	59.2		78.8	S.W. . .	1	C. & K. 1 .	
	9	.200	72.5	73.2	59.4			S.E. . . .	1	0	
	Midn't.	.186	70.2	69.5	56.3			Westerly .	1	0	Max. temp., 76°.0; min., 60°.0.
25	3 A. M.	.154	67.0	66.0	53.6			Calm . .	0	0	6 A. M., min. sky for night, 57°.5.
	6	.154	65.0	64 5	55.6		60.6	S.S.W. . .	1	0	
	9	.140	68.0	68.7	57.2		71.0	S.S.W. . .	1	0	
	Noon.	.120	74.2	74.8	61.4		83.0	S.W. . .	1	0	
	3 P. M.	.140	78.5	80.0	63.5		82.5	S.S.W. . .	3	0	K. very slight to eastward.
	6	.080	80.5	80.0	59.4		83.2	S.S.W. . .	3	0	
	9	.046	76.5	76.0	58.6			S.S.W. . .	1	0	
	Midn't.	.000	72.2	70.5	56.9			N'd and W'd	2	0	Max. temp., 80°.6; min., 64°.5.
26	3 A. M.	.004	70.0	68.5	56.4			Northward .	1	0	Min. sky for night 61° 1. Noon, a few K. over the Andes to the east. At 1h. 9m. A. M. felt a sharp though short ear hqu ike shock, accompanied by a rumbling noise. 6 P. M., some K. over the Andes. Midnight observations taken at 12h. 45m.
	6	.000	67.8	67.0	55.9		64.2	Calm . .	0	0	
	9	.022	71.8	71.8	59.2		75.5	W. . . .	1	0	
	Noon.	28.040	76.0	76.7	61.2		81.3	Westerly .	2	0	
	3 P. M.	27.936	77.0	80.5	62.4		84.0	Westerly .	2	K. 1 . . .	
	6	27.936	77.0	78.3	62.4		78.2	W. . . .	2	0	
	9	28.032	70.7	73.0	59.0			Southerly .	1	0	
	Midn't.	.036	67.5	69.5	57.9			Calm . .	0	0	Max. temp., 80°.5; min., 67.0.
27	3 A. M.	.056	66.0	*76.5	55 4			Calm . .	0	0	* Probably 66°.5.
	6	.080	66.6	65.2	56.9		61.7	S'd and W'd	1	0	3 A. M., these observations taken late. Min. sky for night 59°.5. Midnight observations an hour late. Observer on astronomical duty.
	9	.100	69.5	69.4	60.3		71.2	S.W. . .	1	0	
	Noon.	.112	74.2	76.0	62.6		81.7	S.W. . .	2	†K. 1 . . .	
	3 P. M.	.124	76.2	78.5	65.4		84.6	S.W. . .	2	K. 1 . . .	† Over mountains to eastward.
	6	.110	76.2	77.2	63.7		78.0	S.S.W. . .	1	K. 1 . . .	
	9	.136	72.0	71.7	59.0			S.S.W. . .	1	0	
	Midn't.	.160	68.5	68.5	59.2			Northward .	1	0	Max. temp., 79°.0; min., 64°.8.
28	3 A. M.	.140	*69.2	66.5	56.5			Northward .	1	0	* Door closed.
	6	.190	68.0	66.0	58.5		63.5	Calm . .	0	0	6 A. M., minimum for night, 58°.8. 9 A. M., C. scattered and around the horizon to the south. 3 P. M., scattered C. and slight K. over the Andes.
	9	.200	70.3	69.5	61.0		71.0	N.W. . .	1	C. 1 . . .	
	Noon.	.156	74.3	75.3	61.2		80.5	W. . . .	2	C. 3 . . .	
	3 P. M.	.153	79.3	80.4	63.0		84.6	W. . . .	2	C. 5 . . .	
	6	.198	79.0	79.2	61.7		80.6	S.W. . .	2	C. 2 . . .	
	9	.154	75.5	75.0	61.2			Southerly .	1	0	
	Midn't.	.124	72.3	71.2	57.2			Northerly .	1	0	Max. temp., 73°.2; min., 65°.2.
29	3 A. M.	.100	70.5	69.2	55.6			Northerly .	1	0	6 A. M., minimum sky for night, 61°.0. 3 P. M., small K. over the Andes to the east. 9 P. M., slight K. to eastward. Midnight observations 30 minutes late.
	6	.104	68.0	67.2	59.9		64.5	S.S.E. . .	1	0	
	9	.118	72.5	72.2	60.8		77.0	S.S.W. . .	2	0	
	Noon.	.126	77.0	77.8	62.8		86.0	S.W. . .	2	0	
	3 P. M.	.110	80.7	81.7	64.1		86.5	S.W. . .	1	0	
	6	.104	77.5	77.5	63.7		82.5	S.W. . .	2	K. 1 . . .	Over mountains.
	9	.118	73.2	74.0	59.4			N'd and E'd	1	K. 1 . . .	* Very light.
	Midn't.	28.144	70.0	70.2	58.1			Northward*	0	C. 3 . . .	Max. temp., 82°.2; min., 67°.2.

DECEMBER, 1849—Continued.

DATE.	HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Register. Black.	Register. Sky.	Direction.	Force.		
		Inches	°	°	°	°	°				
16	3 A. M.	28.140	70.2	68 5	58.1			Westward .	1	0	At 6 A. M., min. sky for night, 60°.0. 3 P. M., K. over the Andes.
	6	.180	68.8	66.8	57.2			Calm . .	0	0	
	9	.198	71.5	70.5	58.3		73.5	W. . . .	1	0	
	Noon.	.190	76.2	76.0	63.3		81.5	S.W. . .	1	0 . . .	
	3 P. M.	.152	80.5	81.7	63.0		86.2	S.W. . .	2	0	
	6	.121	81.5	80.8	65.5		84.3	S.W. . .	1	0	
	9	.136	76.8	76.0	63.7			W. . . .	1	0	
	Midn't.	.096	74.0	72.2	55.2			Northward .	1	0	Max. temp., 81°5; min., 64°.0.
17	3 A. M.	.042	71.8	69.4	56.9			Northerly .	1	0	At 6 A. M. min. sky for night, 60°.5.
	6	.056	70.5	68.0	58.3		66.0	Northward .	1	0	
	9	.060	77.0	72.7	59.2		78.2	Calm . .	0	0	
	Noon.	.064	78.7	79.5	64 4		89.2	S.S.W. . .	2	0	
	3 P. M.	.040	84.2	84.7	64.9		91.5	Southward .	3	0	
	6	.060	81.2	81.5	63.5		82.5	S.W. . .	2	0	
	9	.076	77.2	76 0	62.0			Westward .	2	0	
	Midn't.	.040	74.2	72.8	61.7			N'd and W'd	1	0	Max. temp., 83°.7; min., 67°.5.
18	3 A. M.	.010	71.4	69.5	58.1			Calm . .	0	0	Noon, K. over the Andes. 3 P. M., K. over the Andes; quite heavy; threatening a storm. 6 P. M., K. heavy over the Andes to the east. Midnight, K. to the S.E. Observations three quarters of an hour late, the observer being engaged on Santa Lucia.
	6	.064	70.8	68.5	59.0		68.0	Calm . .	0	0	
	9	.086	73.5	72.5	60.8		75.2	Westerly .	1	0	
	Noon.	.090	77 5	78.8	63.7		87.6	Westerly .	2	0	
	3 P. M.	.090	78.0	80.3	63 9		80.8	N. westerly.	2	K. 1 . . .	
	6	.098	74.2	76.3	62.0		72.8	W. . . .	1	K. 1 . . .	
	9	.140	73.7	71.3	57.6			W. . . .	1	0	
	Midn't.	.126	66.0	67.5	56.5			S.E. . . .	1	K. 1 . . .	Max. temp., 80°.2; min., 62°.8.
19	3 A. M.	.096	65.2	66.3	56.3			S.W. . .	1	K. S. 1 . .	Min. sky for night, 59°.5. 9 A. M., slight drizzling rain.
	6	.172	64.0	64.6	56.9		61.0	S.W. . .	1	10 . . .	
	9	.196	65.0	65 2	56.5			Westward .	1	K. S. 10 . .	
	Noon.	.228	66.0	66.4	61.0			S'd and W'd	1	S. 10 . . .	
	3 P. M.	.228	68.0	68.7	62.8			Southward .	3	K. & S. 8 .	
	6	.234	69.5	69.7	62 8			Southward .	2	K. & S. 3 .	
	9	.236	66.0	66.0	59.7			Southward .	1	K. & S. 9 .	
	Midn't.	.220	65.5	65.7	59.4			S.E. . . .	1	S. 9 . . .	Max. temp., 71°.5; min., 60°.2.
20	3 A. M.	.220	65.5	65.0	56.0			S.E. . . .	1	S. 10 . . .	Min. sky for night, 59°.5. Noon, C. K. around the mountains. 3 P. M., heavy cumuli coming from the N.W. 6 P. M., K. over mountains.
	6	.272	65.5	65.0	56.9		62.8	Southward .	1	K. S. 10 . .	
	9	.276	66.0	66.0	57.6		68.6	Westerly .	1	K. S. 9 . .	
	Noon.	.280	69.0	70.0	58.7		73.3	Westerly .	1	C. K. 2 . .	
	3 P. M.	.270	73.2	74.0	61.0		79.0	S.W. . .	2	K. 3 . . .	
	6	.268	73.0	73.5	59.7		72.5	S.W. . .	1	K. 1 . . .	
	9	.272	67.8	69.2	56.5			S. easterly .	1	0	
	Midn't.	.242	64.6	65.2	57.9			S'd and W'd	1	0	Max. temp., 80°.2; min., 65°.0.
21	3 A. M.	.228	65 0	63.0	52.9			S. easterly .	1	0	Min. sky for night, 55°.7.
	6	.266	*67.0	61.7	58.1		57.5	Calm . .	0	0	* Door closed.
	9	.254	66.4	64.0	59.0		66.5	Westward .	1	K. & S. 2 .	
	Noon.	.238	69.2	70.3	62.5		76.8	S.S.W. . .	2	C. & K. S.8.	
	3 P. M.	.206	73.2	73 7	63.5		78.5	S.S.W. . .	2	K. & S.2 .	
	6	.180	72.0	†76.2	61.2		74.9	S.W. . .	2	K. 2 . . .	† In open air.
	9	.224	70.0	67.5	57.4			Southward .	1	K. 1 . . .	
	Midn't.	.201	66.6	65.6	52.9			Southerly .	1	S. 4 . . .	Max. temp., 74°.5; min., 61°.7. Slight haze.
22	3 A. M.	.160	64.2	61.0	50.2			Westward .	1	S. 8 . . .	At 4h 2m. 35s. P. M. there were two distinct light tremblings of the earth, accompanied by a rumbling noise, apparently coming from W. S. W. The 2d tremor was evidently the more violent, though the duration of both did not exceed six seconds. Being warned by the noise at a distance, there was quite time to inspect the watch before the phenomenon occurred. J. M. G.
	6	.170	64.0	60.7	49.7			Calm . .	0	C.S. & K.S.7	
	9	.184	65.0	63.5	52.9		64.3	S.W. . .	1	C. S. 2 . .	
	Noon.	.156	69.0	69.7	56.7		74.0	W. . . .	2	C. & K. 3 .	
	3 P. M.	.126	73.3	74.5	54.9		78.7	W. . . .	2	K. & C. 2 .	
	6	.126	74.0	74 2	55.4		76.2	W. . . .	1	K. & C. 3 .	
	9	.139	71 0	70.2	53 6			Southward .	1	C. S. 5 . .	
	Midn't.	28.136	*68.2	64.2	51.3			Southward .	1	S. 1. . .	Max. temp., 80°.2; min., 58°.7. * Door closed.

DECEMBER, 1849—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.					WIND.		WEATHER.	REMARKS.
			Att'd.	Standard.	Wet.	Register. Black.	Register. Sky.	Direction.	Force.		
		Inches.	°	°	°	°	°				
23	3 A. M.	28.112	65 2	61.5	49.1			Southward .	1	0	Min. sky for night, 55° 3. Midnight observations 44m. late, owing to absence of observer on other duty.
	6	.124	63.7	60.6	53.1		56.8	N'd and E'd.	1	0	
	9	.154	66.2	65.5	54.9		67.5	Calm . .	0	K. 1 . . .	
	Noon.	.170	71.2	71.6	60.1		79.5	S.S.W. . .	1	K. 1 . . .	Over mountains.
	3 A. M.	.158	75 0	75.2	62.6		84.5	S.S.W. . .	2	K. 1 . . .	Do.
	6	.154	74.6	74.5	62.4		76.0	S.S.W. . .	3	K. 1 . . .	To eastward.
	9	.200	68 7	69.4	58 2			N'd and E'd.	1	0	
	Midn't.	.176	65.6	65.5	54.7			Northward .	1	0	Max. temp., 76° 2; min., 59°5.
24	3 A. M.	.150	64.2	63.0	54.0			N.N.E. . .	1	0	6 A. M., slight C. to the south. Minimum sky for the night, 51° 5. 9 A. M., small scattered C. in all parts of the heavens, but principally to the south eastward. Noon, a few light scattered C. overhead; K. S., as usual, over the mountains.
	6	.198	63 0	62.5	50.2		60.3	S.W. . .	1	C. 1 . . .	
	9	.216	66.5	66.0	52.9		68.8	S.W. . .	1	C. 3 . . .	
	Noon.	.217	69.8	72.2	56.5		78.0	S. westerly .	1	K. S. 1 . .	
	3 A. M.	.184	75.8	76.8	59 0		82.8	Westerly .	1	K. 1 . . .	
	6	.178	75.5	76.7	59.2		78.8	S.W. . .	1	C. & K. 1 .	
	9	.200	72.5	73.2	59.4			S.E. . . .	1	0	
	Midn't.	.186	70.2	69.5	56.3			Westerly .	1	0	Max. temp., 76°.0; min., 60°.0.
25	3 A. M.	.154	67.0	66.0	53.6			Calm . .	0	0	6 A. M., min. sky for night, 57°.5.
	6	.154	65.0	64 5	55.6		60.6	S.S.W. . .	1	0	
	9	.140	68.0	68.7	57.2		71.0	S.S.W. . .	1	0	
	Noon.	.120	74.2	74.8	61.4		83.0	S.W. . .	1	0	
	3 P. M.	.140	78.5	80.0	63.5		82.5	S.S.W. . .	3	0	K. very slight to eastward.
	6	.080	80.5	80.0	59.4		83.2	S.S.W. . .	3	0	
	9	.046	76.5	76.0	58.6			S.S.W. . .	1	0	
	Midn't.	.000	72.2	70.5	56.9			N'd and W'd	2	0	Max. temp., 80°.6; min., 64°.5.
26	3 A. M.	.004	70.0	68.5	56.4			Northward .	1	0	Min. sky for night 61° 1. Noon, a few K. over the Andes to the east. At 1h. 9m. A. M. felt a sharp though short earthquake shock, accompanied by a rumbling noise. 6 P. M., some K. over the Andes. Midnight observations taken at 12h. 45m.
	6	.000	67.8	67.0	55.9		64.2	Calm . .	0	0	
	9	.022	71.8	71.8	59.2		75.5	W. . . .	1	0	
	Noon.	28.040	76.0	76.7	61.2		81.3	Westerly .	2	0	
	3 P. M.	27.936	77.0	80.5	62.4		84.0	Westerly .	2	K. 1 . . .	
	6	27.936	77.0	78.3	62.4		78.2	W. . . .	2	0	
	9	28.032	70.7	73.0	59.0			Southerly .	1	0	
	Midn't.	.036	67.5	69.5	57.9			Calm . .	0	0	Max. temp., 80°.5; min., 67.0.
27	3 A. M.	.056	66.0	*76.5	55 4			Calm . .	0	0	* Probably 66°.5.
	6	.080	66.6	65.2	56.9		61.7	S'd and W'd	1	0	3 A. M., these observations taken late. Min. sky for night 59°.5. Midnight observations an hour late. Observer on astronomical duty.
	9	.100	69.5	69.4	60.3		71.2	S.W. . .	1	0	
	Noon.	.112	74.2	76.0	62.6		81.7	S.W. . .	2	†K. 1 . . .	
	3 P. M.	.124	76.2	78.5	65.4		84.6	S.W. . .	2	K. 1 . . .	† Over mountains to eastward.
	6	.110	76.2	77.2	63.7		78.0	S.S.W. . .	1	K. 1 . . .	
	9	.136	72.0	71.7	59.0			S.S.W. . .	1	0	
	Midn't.	.160	68.5	68.5	59.2			Northward .	1	0	Max. temp., 79°.0; min., 64°.8.
28	3 A. M.	.140	*69.2	66.5	56.5			Northward .	1	0	* Door closed.
	6	.190	68.0	66.0	58.5		63.5	Calm . .	0	0	6 A. M., minimum for night, 58°.8. 9 A. M., C. scattered and around the horizon to the south. 3 P. M., scattered C. and slight K. over the Andes.
	9	.200	70.3	69.5	61.0		71.0	N.W. . .	1	C. 1 . . .	
	Noon.	.156	74.3	75.3	61.2		80.5	W. . . .	2	C. 3 . . .	
	3 P. M.	.153	79.3	80.4	63.0		84.6	W. . . .	2	C. 5 . . .	
	6	.198	79.0	79.2	61.7		80.6	S.W. . .	2	C. 2 . . .	
	9	.154	75.5	75.0	61.2			Southerly .	1	0	
	Midn't.	.124	72.3	71.2	57.2			Northerly .	1	0	Max. temp., 73°.2; min., 65°.2.
29	3 A. M.	.100	70.5	69.2	55.6			Northerly .	1	0	6 A. M., minimum sky for night, 61°.0. 3 P. M., small K. over the Andes to the east. 9 P. M., slight K. to eastward. Midnight observations 30 minutes late.
	6	.104	68.0	67.2	59.9		64.5	S.S.E. . .	1	0	
	9	.118	72.5	72.2	60.8		77.0	S.S.W. . .	2	0	
	Noon.	.126	77.0	77.8	62.8		86.0	S.W. . .	2	0	
	3 P. M.	.110	80.7	81.7	64.1		86.5	S.W. . .	1	0	
	6	.104	77.5	77.5	63.7		82.5	S.W. . .	2	K. 1 . . .	Over mountains.
	9	.118	73.2	74.0	59.4			N'd and E'd	1	K. 1 . . .	* Very light.
	Midn't.	28.144	70.0	70.2	58.1			Northward*	0	C. 3 . . .	Max. temp., 82°.2; min., 67°.2.

DECEMBER, 1849—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Register. Black.	Register. Sky.	Direction.	Force.		
		Inches.	°	°	°	°	°				
30	3 A. M.	28.138	68.5	68.4	57.2			N'd and W'd	1	C. K. 6 . .	6 A. M., minimum sky for night, 60°.3. 9. A. M., K. forming on the Andes. Noon, K. heavy over the mountains to the east. 6 P. M., K. heavy over mountains to east.
	6	.166	67.5	66 0	56.5		61.0	Northerly .	1	C. 1 . . .	
	9	.178	70.0	70.2	60.3		72.5	S. westerly .	1	C. K. 1 . .	
	Noon.	.182	74.3	75.2	63.3		80.0	S.W. . .	1	K. & C. 2 .	
	3 P. M.	.170	77.5	79.5	64.4		81.5	S. westerly .	2	K. 1 . . .	
	6	.171	76.0	77.0	62.6		77.0	Westerly .	2	K. 2 . . .	
	9	.180	73.0	74.0	60.3			N. easterly .	1	0	
	Midn't.	.175	70.5	70.3	58.3			N. Westerly	1	0	Max. temp., 79°.5; min., 64°.6.
31	3 A. M.	.160	68.3	68.0	58.1			Westerly .	1	0	
	6	.212	71.0	66.2	62.0		60.5	Westward .	1	0	
	9	.200	71.5	69.5	60.8		72.2	S.S.W. . .	1	K. . . .	Very slight to eastward.
	Noon.	.172	75.2	75.5	64.4		82.0	S.S.W. . .	1	K. 1 . . .	
	3 P. M.	.146	78.5	81.0	65.2		86.5	Southward .	3	K. 2 . . .	
	6	.150	80.2	80.5	64.9		80.2	Southward .	2	K. 1 . . .	
	9	.150	77.0	76.5	62.2			Southward .	1	0	
	Midn't.	28 124	74.2	73.0	59.1			N.N.W. . .	1	0	Max. temp., 83°.5; min., 65.°0.

JANUARY, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Stand ard.	Wet.	Register. Black.	Sky.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°				
11	3 A. M.	28.124	69.0	65.5	53.2			Northward .	1	0	6 A. M., min. sky for night 58°.5. Noon, K. & S. on the mountains to the E. and S.E. Wind shifting from S.W. to S.E. continually.
	6	.132	68.8	65.7	53.6		62.3	Northward .	1	0	
	9	.168	69.5	68.8	55.9		72.5	Northerly .	1	0	
	Noon.	.162	74.5	74.7	58.1		81.0	S. westerly .	1	K. & S. 1 .	
	3 P. M.	.136	76.5	80 0	60.3		85.2	Southward .	1	K. & C. 2 .	
	6	.139	78.8	79 8	62.2		81 2	Westward .	2	K. & C. 3 .	
	9	.156	75.5	75.0	57.0			N'd and E'd	1	0	
	Midn't.	.144	72.8	72.9	60.6			Northward .	1	S. 2 . . .	Max. temp., 80°.6; min., 64°.0. Around horizon. Lightning to the east occasionally, over Andes.
12	3 A. M.	.106	70.5	66 8	57 2			Northward .	1	0	3 A. M., some K. S. on the mountains to the S.E. Perceived some little dew on the ballusters and wood-work. 6 A. M., min. sky for night 61°.5.
	6	.109	69.8	68 2	56.8		63 7	N.N.W. .	1	C. K. 3 . .	
	9	.100	71.0	69 8	58.2		71.4	S'd and E'd	1	C. K. 4 . .	
	Noon.	.110	74.7	75.0	62 6		81 5	S'd and E'd	1	K. 1 . . .	
	3 P. M.	.080	79.5	80.2	63.0		84 7	S. by W. .	1	C. & K. 5 .	
	6	.080	79.5	80.3	62.8		81.7	S. . . .	1	C. & K. 7 .	
	9	.082	77.5	77.1	59 9			Southward .	1	0	
	Midn't.	.050	73.5	72.0	58 5			Northward .	1	0	Max. temp., 80°.6; min., 67°.0.
13	3 A. M.										6 A. M., min. sky for night 60°.5.
	6	.020	68.0	67.5	55.5		62.5	Calm . .	0	0	
	9	.006	72.0	71.7	59.7		76.2	Southward .	1	0	
	Noon.	28.004	75.7	77.8	63.0		83.3	S. westerly	1	0	
	3 P. M.	27.966	82.5	84.0	33 7		89.0	S.W. . .	2	K. 1 . . .	K. over Andes.
	6	.957	82.8	84.0	63.9		85.7	W. . . .	3	C. K. 3 . .	
	9	.976	76 8	77.8	61.5			S. . . .	1	K. S. 2 . .	
	Midn't.	.940	73.7	73.5	59.2			N.N.W. .	1	K. S. 5 . .	Max. temp., 83°.2; min., 68°.3.
14	3 A. M.	27.972	72.2	71 0	58.5			S. easterly .	1	K. S. 5 . .	6 A. M., min. sky for night 62°.0.
	6	28.054	70.4	*72.5	53 4		63.2	Calm . .	0	C. K. 2 . .	* Caused by rays of sun falling on thermometer.
	9	.086	72.1	72.3	59.5		74.1	S.S.W. . .	1	C. K. 5 . .	
	Noon.	.100	76 0	76 3	63 9		81.4	S'd and E'd	1	C. K. 3 . .	
	3 P. M.	.094	79.7	80 2	34 2		84.7	Southward .	2	C. K. 2 . .	
	6	.094	79.0	79.2	63 4		83.0	Southward .	1	K. 1 . . .	To northward and eastward.
	9	.107	74.0	73 5	33 0			S. westerly .	1	0	
	Midn't.	.112	72 0	71 0	30.8			Northward	2	0	Max. temp., 81°.7; min., 70°.2.
15	3 A. M.	.106	71 5	69.5	33.2			Northward .	1	0	6 A. M., min. sky for night 61°.5.
	6	.104	69.5	70 3	59.0		63.8	Northward .	1	0	
	9	.153	71.8	71.5	32.6		74.0	S.W. . .	1	0	
	Noon.	.158	76 5	76.7	63.2		82 0	Westerly .	1	0	Slight K.
	3 P. M.	.122	81.8	82 8	67.5		85.2	S. westerly .	1	0	Slight K. over Andes.
	6	.100	81.5	81.8	65.5		83.5	S. westerly .	1	0	
	9	.110	78.0	77.5	62.6			Southward .	1	0	
	Midn't.	.071	75.2	74.8	62.8			N.E. . . .	1	0	Max. temp., 83°.0; min., 63°.5.
16	3 A. M.	.034	73 5	71.7	61.2			N. easterly .	1	0	
	6	.046	71.3	72.0	60.3			Calm . .	0	0	
	9	.050	74.7	74.8	63.0		78 2	Light . .	0	0	Wind light, direction not discernible.
	Noon.	.074	80.0	80.2	63.9		86.0	Southward .	1	0	Snow on Andes.
	3 P. M.	.034	82.2	83.0	64.6		87.5	S'd and W'd	2	0	Very slight K. to northward.
	6	022	80.5	81.2	63 9			S.W. . .	1	0	
	9	.048	74.8	75.5	61.2			S. westerly .	1	0	
	Midn't.	.030	73.7	73 6	60.8			N'd and E'd	1	0	Max. temp., 83°.5; min., 70°.0.
17	3 A. M.	.013	74.5	70.1	58 9			Calm . .	0	0	Between 11 and midnight a singular appearance was produced by the clouds diverging from a point in the east and stretching up to the zenith, very much resembling the fine pencils of shade so frequently seen in the same direction shortly before sunrise.
	6	.040	72.3	71.3	61.2		67.8	Calm . .	0	0	
	9	.058	73.8	72 3	61.0		74.2	W.N.W. .	1	0	
	Noon.	.064	76.5	76.3	63.0		82 5	W.N.W. .	2	0† . . .	
	3 P. M.	.052	80.0	80.3	63.7		84.0	Westerly .	3	C. K. 1 . .	
	6	.050	78.0	78.5	62 8		79.3	Westerly .	2	C. K. 2 . .	
	9	.064	73.2	72.7	61.7			N'd and E'd	1	0	† K. over Andes.
	Midn't.	28.026	70.7	69.5	58.1			Westerly .	1	C. S. 2 . .	Max. temp., 81°.3; min., 69°.5.

JANUARY, 1850—Continued.

DAY	HOUR.	BAROMETER	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
			Att'd	Standard.	Wet.	Register. Black.	Register. Sky.	Direction.	Force.		
		Inches.	°	°	°	°	°				
4	3 A. M.	28.164	66.8	65.2	55.9			S. easterly .	1	K. S. 1 . .	6 A. M., min. sky for night 57°.5. During yesterday considerable snow fell on the Andes.
	6	.186	66.2	64.2	57.2		60.0	Calm . .	0	C. K. 1 . .	
	9	.190	68.0	67.0	57.4		68.0	Calm . .	0	0	Very slight C. and K. overhead.
	Noon.	.190	72.3	73.3	60.6		76.5	Westerly .	2	K. 1 . . .	Principally over Andes to E. and N.
	3 P. M.	.164	76.0	77.5	60.8		83.0	S. westerly .	3	K. 2 . . .	Do. do.
	6	.136	76.6	76.6	60.0		78.0	S.W. . .	2	K. 2 . . .	Slight to southward and westward.
	9										Observations lost.
	Midn't.	.110	70.5	70.0	55.4			Northward .	1	0	Mid. obs. 30m. late. Max. temp., 77°.7.; min., 64°.7.
5	3 A. M.	.076	69.5	66.5	55.1			Northward .	1	0	6 A. M., slight C. S. to the southward. Min. sky for night 59°.5.
	6	.116	68 3	65.8	56.1		62.5	Northward .	1	0	
	9	.126	70.3	69.8	58.5		73.0	Northward .	1	C. 3 . . .	
	Noon.	.130	75.3	76 0	61.5		84.0	S.W. . .	3	C. K. 8 . .	
	3 P. M.	.130	79.3	79.5	65.0		85.5	Westerly .	4	C. K. 7 . .	
	6	.156	75.5	76.3	57.9			S.S.W. . .	2	C. K. 8 . .	
	9	.147	72.0	72.8	56.7			S.S.W. . .	1	C. K. 3 . .	
	Midn't.	.152	69.0	69.4	54.9			Easterly .	1	S. 1 . . .	Max. temp., 79°.3; min., 65°.5.
6	3 A. M.	.140	68.8	67.7	54.5			N.E. . . .	1	C. K. . .	Mackerel sky.
	6	.190	69.0	67.5	55.2		65.0	N.E. . . .	1	C. K. & S. 10	
	9	.200	70 0	68.2	56.8		73.9	S.S.W. . .	1	C. K. & S. 9	
	Noon.	.200	72.5	72.5	59.4			W.S.W. .	2	C. K. & S. 7	
	3 P. M.	.186	76.0	76.2	59.6			S.W. . .	2	C. K. & S. 5	
	6	.186	75.0	75.5	59.0			Westward .	2	C. K. 4 . .	
	9										Observations lost.
	Midn't.	.180	68.0	68.0	56.9			Calm . .	0	0	Max. temp., 76°.2; min., 66°.2.
7	3 A. M.	.174	67.5	67.0	56.7			Calm . .	0	0	6 A. M., small C. over the Andes to the east; min. sky for night, 56°.0; noon, K. over the mountains to the east.
	6	.200	66.8	63.3	54.5		58.5	Northward .	1	0	
	9	.190	68.8	67.2	57.6		69.0	N.E. . . .	1	0	
	Noon.	.191	72.5	73.2	60.3		84.0	N.E. . . .	1	0	
	3 P. M.	.172	77.5	78.3	61.0		85.0	S.W. . .	2	K. & S. 3 .	Rather late.
	6	.169	77.8	77.4	59.7		78.5	S. westerly .	1	K. & S. 1 .	
	9	.179	72.0	73.0	56.9			S.W. . .	1	0	
	Midn't.	.147	69.5	69.8	56.7			N.E. . .	1	0	Max. temp., 78°.3; min., 61°.5.
8	3 A. M.	.102	67.8	66.7	53.8			N.E. . . .	1	0	6 A. M., min. sky for the night, 58.°2.
	6	.114	66.0	65.0	54.7		62.5	N.N.E. . .	1	0	
	9	.136	69.2	68.0	56.7		72.2	N.N.E. . .	1	0	
	Noon.	.136	74 0	74.6	59.9		81.7	S.W. . .	2	K. 1 . . .	
	3 P. M.	.116	79.0	79.8	60.6		84.6	S.W. . .	3	K. 1 . . .	Over Andes to the northward and eastward.
	6	.110	78.5	76.8	59.5		78.5	S. . . .	2	K. 1 . . .	Do. do. do.
	9	.158	73.5	74.3	56.9			S.E. . .	1	0	
	Midn't.	.144	70.5	70.2	54.3			Calm . .	0	0	Max. temp., 79°.7; min., 61°.2.
9	3 A. M.	.125	67.0	66.5	53.4			N'd and E'd	1	0	6 A. M., min. sky for the night, 59°.0; noon, heavy bank of K. over the Andes to the east; 3 P. M., the same. 6 P. M., some K. over the Andes.
	6	.086	67.0	65.0	52.9		61.0	Northwest'ly	1	0	
	9	.105	69.0	68.7	55.4		70.2	Northerly .	1	0	
	Noon.	.100	74.0	74.0	58.3		83.0	Southwest'ly	2	0	
	3 P. M.	.084	79.0	79.3	59.7		85.0	S.W. . .	3	0	
	6	.075	79.3	79.5	60.8		81.0	S.W. . .	1	0	
	9										Observer on the hill.
	Midn't.	.096	72.0	71.3	53.8			N.W. . .	1	0	Max. temp., 79°.8; min., 61°.5.
10	3 A. M.	.064	69.0	66.3	50.9			Northerly .	2	0	Min. sky for night, 57°.5.
	6	.080	68.2	65.5	52.7		73.2	N.N.W. .	1	0	
	9	.100	70.5	69.2	55.9		75.0	N'd and E'd	1	0	Smoky appearance.
	Noon.	.102	74.6	76.6	58.2		69.0	S.S.W. . .	1	K. 1 . . .	30 minutes late.
	3 P. M.	.104	79.0	80.6	59.9		84.6	S.S.W. . .	1	K. 1 . . .	
	6	.108	78 3	77.8	58.5		80.0	S.S.W. . .	2	C. & K. 3 .	
	9										Observer on the hill.
	Midn't.	28.140	71.1	70.5	53.9			S.S.E. . .	2	0	Max. temp., 80°.5; min., 63°.5.

JANUARY, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Stand ard.	Wet.	Register. Black.	Sky.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°				
24	3 A. M.	28.064	69.0	67.6	51.5			N. easterly .	1	0	3 P. M., wind unsteady and shifting; difficult to determine its direction.
	6										
	9	.124	69.2	68.5	55.4		76.2	N'd and E'd	Airs.	0	
	Noon.	.134	74.8	75.0	58.1		82.0	N.W. . .	3	0	Slight K. over Andes.
	3 P. M.	.122	79.3	79.7	59.9		86.2	W. . . .	4	0	K. over Andes.
	6	.106	79.8	80.4	60.8		83 0	W.S.W. .	3	0	
	9	.114	75.3	75.5	58 3			N.E. . .	1	0	
	Midn't.	.064	71.8	71.0	54.9			N'd and E'd	2	0	Max. temp., 81°.5; min. 65°.0. Half-past 12.
25	3 A. M.										6 A. M., min. sky for night, 58°.5.
	6	.100	67.5	67.2	55.6		64.0	S'd and W'd	Airs.	0	
	9	.112	70 5	70.1	57.2		73.0	N. and W. .	Airs.	0	Slight K. S. over Andes.
	Noon.	.111	75.5	76.0	59.4		81.8	N. and W'd.	2	0	
	3 P. M.	.106	81.7	82.2	59.7		87.3	W. by N. .	4	0	K. and S. over Andes.
	6	.082	82 5	83 7	59.0		85.0	W. by S. .	3	0	
	9	.126	77 7	78.3	60 1			Southward .	1	0	C. S. over Andes.
	Midn't.	.094	75.0	73.0	56.7			Westward .	4	2	Max. temp., 83°.0; min., 66°.0. C. K. to the north-eastward.
26	3 A. M.										
	6	.126	69.0	68.7	57 4		63.3	N. easterly .	1	C. S. 2 . .	6 A. M., min. sky for night 63°.0.
	9	.153	71 8	71 4	58 5		75.8	S. westerly .	1	C. S. 1 . .	
	Noon.	.162	76 5	77.2	58.7		81.6	W. by S. .	1	C. S. 1 . .	Atmosphere to N. smoky.
	3 P. M.	.128	81.8	82.5	61.7			W. by N. .	3	K. & C. S. 1	Mostly over Andes.
	6	.108	83.1	84.5	63.0		87.0	W. by N. .	2	0	Much haze.
	9	.126	78.3	79.0	60 8			N.E. . . .	1	0	Haze over Andes.
	Midn't.	.116	74.3	73.6	57.4			Northward .	1	0	Max. temp., 83°.5; min., 67°.5.
27	3 A. M.										
	6	.070	69.5	69.7	57.4		63.7	N. and E. .	Air.	0	6 A. M., min. sky for night 63°.5.
	9	.095	77.2	76.0	59.7		75.3	Northward .	2	0	
	Noon.	.088	76 5	77 2	60.8		81.3	W. by S. .	2	0	
	3 P. M.	.082	83.0	83.4	62.0		91.5	W. by S. .	3	0	Heavy K. over Andes.
	6	.058	83.0	84.0	64.4		88.0	W.S.W. .	3	0	
	9	.086	79 3	80.2	62.8			N.W. . .	2	0	
	Midn't.	.068	76.0	70.3	58.5			W.N.W. .	1	0	Max. temp., 83°.1; min., 68°.9.
28	3 A. M.										6 A. M., min. sky for night 53°.2.
	6	.046	70.4	69.5	56.3		67 5	N.E. . . .	1	0	Rather late.
	9	.052	72.5	71.7	59 4		76.8	N.E. . . .	1	0	
	Noon.	.055	78.0	78.5	62.4		84.0	S. westward	1	0	
	3 P. M.	.042	82.3	84.7	63.3		89.3	W. by N. .	3	0	Heavy K. over Andes.
	6	.016	83.7	84.4	62.6		86.3	W. by S. .	3	0	K. light over Andes.
	9	.058	77.5	77.6	59.9			N. by E. .	1	0	
	Midn't.	.028	75.4	73.2	56.9			W.N.W. .	2	0	Max. temp., 84°.0; min., 69°.0.
29	3 A. M.										6 A. M., min. sky for night 61°.2. Noon, atmosphere to the south smoky; mountains could not be distinguished. At 3 P. M. ditto.
	6	.008	69.5	72.6	56.7		63.8	N. by E. .	1	0	
	9	.042	77.7	77.1	59.9		76 7	W. by S. .	1	0	
	Noon.	.034	77.5	77.3	61 7		82.0	N.W. . .	3	0	Heavy K. over Andes.
	3 P. M.	.064	81.2	81.4	63.3		87 2	S.W. . .	6	K. 1 . . .	Over Andes.
	6	.082	78.7	79.8	62.6		79.2	S.W. . .	4	0	K. over Andes.
	9	.068	72.7	71.9	59 9			N.E. . . .	2	0	
	Midn't.	.080	70.8	69.9	59.4			N.W. . .	1	0	Max. temp., 82°.3; min., 69°.2.
30	3 A. M.										6 A. M., min. sky for night 58°.5.
	6	.134	67.0	64.0	57.4		62.5	W. by S. .	1	S. 1 . . .	Over Andes.
	9	.154	69.5	68.0	59.9		71.8	S.W. . .	1	S. 1 . . .	Do. do., increasing.
	Noon.	.174	73.5	72.3	62.2		78.0	Westward .	2	C. & K. 2 .	Mostly over Andes.
	3 P. M.	.138	77.5	77.7	64 4		82.3	W. by S. .	3	C. & K. 3 .	
	6	.104	78.0	78 2	63.0		81.1	W.S.W. .	4	C.S. & K.S. 6	
	9	.126	71.8	71.8	59.9			S.W. . .	2	K. S. 5. . .	Wind unsteady. [partial halo around the moon.
	Midn't.	28.124	70.9	69.7	56.3			N'd and W'd	2	C. S. 5 . .	Max. temp., 79°.7; min., 65°.0. At midnight a

JANUARY, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Stand ard.	Wet.	Register. Black.	Sky.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°				
*18	3 A. M.	28.038	71.5	67.5	55.4			S. westerly .	1	0	
	6	.064	70.1	67.7	56.5		64.2	Southerly .	1	0	Very slight (K.) over Andes.
	9	.110	71.6	69.7	59 4		71.5	S.S.E. . .	1	K. 1 . . .	Hazy.
	Noon.	.140	76.0	76.2	63.3		82.0	S.S.W. . .	1	K. 1 . . .	Over Andes to northward and eastward heavy.
	3 P. M.	.122	79.5	80.4	63.5		84.5	S.S.W. . .	2	K. 2 . . .	
	6	.030	79.0	79.2	61.7		78.4	S.W. . .	2	K. 3 . . .	
	9	.076	75 0	73.0	58.5			S.W. . .	1	0	
	Midn't.	.082	72.0	70.5	55.4			Southward .	1	0	Max. temp., 84°.0; min., 67°.6.
†19	3 A. M.	.074	72.5	68.5	53.6			Northward .	1	0	
	6	.080	70.7	70.2	56 5		64.3	Northerly .	1	0	
	9	.078	72.0	69.8	59.2		71.5	Northerly .	1	0	
	Noon.	.074	76.0	75.5	63.0		80.5	N. westerly	1	0	Few (K.) over Andes.
	3 P. M.	.076	79.0	79.5	63.3		83.6	S. ea-terly .	3	K. & C. 7 .	
	6	.090	77.0	77.3	61.0		77.4	S. easterly .	3	K. & C. 7 .	
	9	.100	71.7	71.0	58 5			S'd and E'd	1	K. & C. 3 .	
	Midn't.	.064	69.2	67.5				S. easterly .	1	K. S. 3 . .	Max. temp., 80°.3; min., 67°.8. Rather late.
‡20	3 A. M.	.034	68 5	64.5	52.2			N. easterly .	2	K. S. 5 . .	
	6	.044	66.3	62.2	51.6			Calm . .	0	C. & K. S. 7	
	9	.110	68.0	65.2	54.7			Southward .	1	C. & K. S. 7	
	Noon.	.180	71.7	71.4	59.2			S'd and E'd	2	C. & K. S. 9	
	3 P. M.	.108	75.5	75.0	62 2			S.S.W. . .	3	C. & K. S. 7	
	6	.038	75.0	75.0	59 5			S.S.W. . .	2	C. & K. S. 7	
	9	.060	68 2	68.0	53.2			Southward .	1	0	
	Midn't.	.052	68.0	65.5	52.2			S.S.W. . .	2	0	Max. temp., 77° 5; min., 64°.0. Taken at 12h. 20m.
21	3 A. M.	.038	65.1	61.9	50.2			Calm . .	0	0	Beautifully clear.
	6										
	9	.126	65 5	62.0	52.7		63.5	N. westerly.	1	0	Slight K. over Andes.
	Noon.	.134	69.7	68.5	56.5		74.0	Westward .	3	0	K. around horizon.
	3 P. M.	.122	72.8	72 3	56.3		78.8	W.S.W. .	3	K. 1 . . .	Do. do.
	6	.108	73.5	73.0	57.9		75.2	N.W. . .	3	0	K. over Andes.
	9	.156	71.5	68.7	55 9			E. . . .	1	0	
	Midn't.	.123	68.3	66.3	53.6			Calm . .	0	0	Max. temp., 75°.5; min., 58°.5.
22	3 A. M.	.038	65.5	61.0	50 0			N. . . .	1	0	6 A. M., minimum sky for night, 50°.5.
	6	.071	63.0	59.5	48.6		50.8	N. easterly .	1	0	
	9	.085	65.0	63.0	52.9			Westward .	3	0	Smoky atmosphere to the south-westward.
	Noon.	.068	70 0	69.5	56 7		75.5	N.N. west'd.	3	K. 1 . . .	
	3 P. M.	.065	75.0	75.5	59.0		83.0	N.N.W. .	2	C. S. 1 . .	K. over Andes.
	6	.056	77.2	77.7	58.7		84.4	W.S.W. .	3	0	
	9	.100	72.7	72.3	55.4			Westerly .	1	0	
	Midn't.	.056	70.0	66.5	50.0			W.S. west'd	3	0	Max. temp., 76°.5; min., 61°.0.
23	3 A. M.										6 A. M., min. sky for night, 55°.0.
	6	.038	64.0	63.9	52.5		59.5	Calm . .	0	0	Slight air from northward.
	9	.053	68.2	67.5	54.3		74.0	N.W. . .	1	0	
	Noon.	.072	73.2	73.5	57.6		79.6	S'd and W'd	1	0	
	3 P. M.	.066	80 0	80 2	59.4			W.S.W. .	4	K. 1 . . .	Over Andes.
	6	.056	79.4	79.6	58.5		79.8	W.S.W. .	3	K. 1 . . .	Do.
	9	.096	73.0	73.0	54.0			S. westward	1	0	
	Midn't.	28.080	71.0	69.3	53.1			Northerly .	1	0	Max. temp., 80°.5; min., 68°.5.

* 3 A. M. time of the observations rather uncertain, the clock having stopped—perhaps early, by 15 or 20 minutes. 6 A. M., min. sky for night, 61°.4.

† 6 A. M., min. sky for night, 61°.5. Observations late. 9 A. M., temperature by standard thermometer (air) falling, without any apparent cause, while the others show it rising.

‡ Noon, heavy K. & S. near horizon, and C. over head. At 10h. 48m. 0s. P. M. there was a slight tremor of the earth, accompanied by a faint rumbling noise. This lasted nearly five seconds. After an interval of four seconds a second vibration occurred, coming from the S.W. The latter was much more violent and continued for 12 seconds. The oscillation was distinct from the quarter mentioned, and of so decided a character that the inhabitants rushed to the streets.

J. M. G.

JANUARY, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Stand-ard.	Wet.	Register. Black.	Sky.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°				
24	3 A. M.	28.064	69.0	67.6	51.5			N. easterly .	1	0	3 P. M., wind unsteady and shifting; difficult to determine its direction.
	6										
	9	.124	69.2	68.5	55.4		76.2	N'd and E'd	Airs.	0	
	Noon.	.134	74.8	75.0	58.1		82.0	N.W. . .	3	0	Slight K. over Andes.
	3 P. M.	.122	79.3	79.7	59.9		86.2	W. . . .	4	0	K. over Andes.
	6	.106	79.8	80.4	60.8		83 0	W.S.W. .	3	0	
	9	.114	75.3	75.5	58 3			N.E. . .	1	0	
	Midn't.	.064	71.8	71.0	54.9			N'd and E'd	2	0	Max. temp., 81°.5; min. 65°.0. Half-past 12.
25	3 A. M.										6 A. M., min. sky for night, 58°.5.
	6	.100	67.5	67.2	55.6		64.0	S'd and W'd	Airs.	0	
	9	.112	70 5	70.1	57.2		73.0	N. and W. .	Airs.	0	Slight K. S. over Andes.
	Noon.	.111	75.5	76.0	59.4		81.8	N. and W'd.	2	0	
	3 P. M.	.106	81.7	82.2	59.7		87.3	W. by N. .	4	0	K. and S. over Andes.
	6	.082	82 5	83 7	59.0		85.0	W. by S. .	3	0	
	9	.126	77 7	78.3	60 1			Southward .	1	0	C. S. over Andes.
	Midn't.	.094	75.0	73.0	56.7			Westward .	4	2	Max. temp., 83°.0; min., 66°.0. C. K. to the north-eastward.
26	3 A. M.										
	6	.126	69.0	68.7	57 4		63.3	N. easterly .	1	C. S. 2 . .	6 A. M., min. sky for night 63°.0.
	9	.153	71 8	71 4	58.5		75.8	S. westerly .	1	C. S. 1 . .	
	Noon.	.162	76 5	77.2	58.7		81.6	W. by S. .	1	C. S. 1 . .	Atmosphere to N. smoky.
	3 P. M.	.128	81.8	82.5	61.7			W. by N. .	3	K. & C. S. 1	Mostly over Andes.
	6	.108	83.1	84.5	63.0		87.0	W. by N. .	2	0	Much haze.
	9	.126	78.3	79.0	60 8			N.E. . . .	1	0	Haze over Andes.
	Midn't.	.116	74.3	73.6	57.4			Northward .	1	0	Max. temp., 83°.5; min., 67°.5.
27	3 A. M.										
	6	.070	69.5	69.7	57.4		63.7	N. and E. .	Air.	0	6 A. M., min. sky for night 63°.5.
	9	.095	77.2	76.0	59.7		75.3	Northward .	2	0	
	Noon.	.098	76 5	77 2	60.8		81.3	W. by S. .	2	0	
	3 P. M.	.082	83.0	83.4	62.0		91.5	W. by S. .	3	0	Heavy K. over Andes.
	6	.058	83.0	84.0	64.4		88.0	W.S.W. .	3	0	
	9	.086	79 3	80.2	63.8			N.W. . .	2	0	
	Midn't.	.068	76.0	76.3	58.5			W.N.W. .	1	0	Max. temp., 83°.1; min., 68°.9.
28	3 A. M.										6 A. M., min. sky for night 53°.2.
	6	.046	70.4	69.5	58.3		67 5	N.E. . . .	1	0	Rather late.
	9	.052	72.5	71.7	59 4		76.8	N.E. . . .	1	0	
	Noon.	.055	78.0	78.5	62.4		84.0	S. westward	1	0	
	3 P. M.	.042	82.3	84.7	63.3		89.3	W. by N. .	3	0	Heavy K. over Andes.
	6	.016	83.7	84.4	62.6		86.3	W. by S. .	3	0	K. light over Andes.
	9	.058	77.5	77.6	59.9			N. by E. .	1	0	
	Midn't.	.028	75.4	73.2	56.9			W.N.W. .	2	0	Max. temp., 84°.0; min., 69°.0.
29	3 A. M.										6 A. M., min. sky for night 61°.2. Noon, atmosphere to the south smoky; mountains could not be distinguished. At 3 P. M. ditto.
	6	.008	69.5	72.6	58.7		63.8	N. by E. .	1	0	
	9	.042	77.7	77.1	59.9		76 7	W. by S. .	1	0	
	Noon.	.034	77.5	77.3	61 7		82.0	N.W. . .	3	0	Heavy K. over Andes.
	3 P. M.	.064	81.2	81.4	63.3		87 2	S.W. . .	6	K. 1 . . .	Over Andes.
	6	.082	78.7	79.8	62.6		79.2	S.W. . .	4	0	K. over Andes.
	9	.068	72.7	71.9	59 9			N.E. . . .	2	0	
	Midn't.	.080	70.8	69.9	59.4			N.W. . .	1	0	Max. temp., 82°.3; min., 69°.2.
30	3 A. M.										6 A. M., min. sky for night 58°.5.
	6	.134	67.0	64.0	57.4		62.5	W. by S. .	1	S. 1 . . .	Over Andes.
	9	.154	69.5	68.0	59.9		71.8	S.W. . .	1	S. 1 . . .	Do. do., increasing.
	Noon.	.174	73.5	72.3	62.2		78.0	Westward .	2	C. & K. 2 .	Mostly over Andes.
	3 P. M.	.138	77.5	77.7	64 4		82.3	W. by S. .	3	C. & K. 3 .	
	6	.104	78.0	78 2	63.0		81.1	W.S.W. .	4	C.S. & K.S. 6	
	9	.136	71.8	71.8	59.9			S.W. . .	2	K. S. 5. . .	Wind unsteady. [partial halo around the moon.
	Midn't.	28.124	70.9	69.7	56.3			N'd and W'd	2	C. S. 5 . .	Max. temp., 79°.7; min., 65°.0. At midnight a

JANUARY, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Register. Black.	Register. Sky.	Direction.	Force.		
		Inches.	°	°	°	°	°				
31	3 A. M.										
	6	28.170	67.2	66.7	58.7		63.8	Westward .	1	C. 1 . . .	Rather late.
	9	.178	69 3	67.8	59.9		73.0	N. westward	1	K. & C. 1 .	K. mostly over Andes.
	Noon.	.172	74.3	74 3	63.0		78.8	N. westward	3	K. & C. K. 3	Very heavy over Andes.
	3 P. M.	.127	78.5	79 0			86 3	N. westward	3	K. & C. K. 4	Very heavy over Andes.
	6	.104	78.8	79.0	61 5		80.5	W. . . .	3	K. 2 . . .	Over Andes.
	9	.127	77.8	73.0	61.0			W. by S. .	2	0	
	Midn't.	28.114	72.0	72.5	60.8			Airs . . .		0	Max. temp., 80°.5; min., 66°.4.

GENERAL REMARKS.

January 4.—When a great inequality is shown in the journal between the thermometers marked air and attached, the difference of temperature arises from the fact that the doors of the office are closed at such times.

January 11, *midnight.*—The standard thermometer (formerly suspended in the first story) was brought up stairs and placed beside the wet bulb thermometer, there to remain.

January 30.—At 10*h.* 30*m.* unpacked the steel barometer for the first time and suspended it beside standard. Reading of standard 28.164 *in.* Attached thermometer 72°.3. Reading of steel barometer 28.000 *in.* Mercury was then taken out of the latter until the readings of the former was 28.154 *in.*, temperature 72°.3, and of the latter 28.152 *in.* The steel tube was then repacked and taken to the observatory.

J. M. G.

FEBRUARY, 1850.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.					WIND.		Clouds.	REMARKS.
			Att'd.	Standard.	Wet.	Register. Black.	Register. Sky.	Direction.	Force.		
		Inches.	°	°	°	°	°				
1	3 A. M.										6 A. M., min. sky for night, 59°.7.
	6	28.154	67.5	65.8	56 5		60.8	N. by E. .	1	0	
	9	.180	70.3	69.0	60.6		71 8	N. by W. .	1	0	K. over Andes.
	Noon.	.160	74.7	74.3	63.5		80.0	W.N.W. .	2	K. 1 . . .	Over Andes.
	3 P. M.	.128	79.5	79.6	64.9		85.3	W. by S. .	2	K. 2 . . .	Mostly over Andes.
	6	.088	78.8	80.1	59.9		81.1	W. . . .	3	0	K. over Andes.
	9	.122	74.0	73.7	60.1			N.E. . . .	1	0	
	Midn't.	.098	72.0	71.0	60.3			N E. . . .	1	0	Max. temp., 81°.5; min., 65°.0.
2	3 A M										6 A. M., min. sky for night, 60°.5.
	6	.142	67 5	65.2	57 9		61 3	N. . . .	1	0	Slight K. S. over Andes.
	9	.136	69.5	68.2	59 4		69.3	N E. . . .	1	K. & C. S. 1	Mostly over Andes.
	Noon.	.145	74.8	74 8	63 3		80 6	W by S. .	2	K. & C. S. 2	Mostly over Andes.
	3	.105	78.0	78.3	64.1		82 8	W. . . .	3	K. & K. S. 2	K. heavy over Andes.
	6	.064	77.2	77.6	63.3		78 0	S.W. . .	3	0	K. light over Andes. [over Andes to S.E.
	9	.026	70.2	69 7	58.1			S.W. . .	2	0	Wind unsteady. Frequent flashes of lightning
	Midn't.	28.074	68.0	67.5	58.3			Calm . .	0	0	Max. temp., 78°.7; min., 68°.7.

FEBRUARY, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Stand-ard.	Wet.	Register. Black.	Sky.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°				
3	3 A. M.										6 A. M., min. sky for night, 60°.0.
	6	28.080	67.0	64.5	56 3		60 3	N E. . . .	1	K. & C. K. 3	Mostly over Andes.
	9	.132	68.5	67.2	59.0		69.5	N.E. . . .	1	K. & C. K. 7	
	Noon.	.132	77.5	77.3	62.4		77.8	E. . . .	1	K. & C. 3 .	K. heavy over Andes.
	3 P. M.	.120	78.0	78.2	64 1		84.3	S W. . .	1	K. 2 . . .	K. heavy over Andes.
	6	.106	78.5	79.2	60.3		82.1	W.S.W. .	3	K. 1 . . .	Over Andes.
	9	.122	74 0	73.2	56.5			E. . . .	1	0	
	Midn't.	.084	70.8	70.0	56.5			Calm . .	0	0	Max. temp., 80°.1; min., 65°.0.
4	3 A. M.										6 A. M., min. sky for night, 59°.3.
	6	.158	67.5	66.5	56.1		67.0	N E . . .	1	0	Observations late.
	9	.180	69.5	68.7	56.3		73.3	W. by S. .	1	0	Some K. over Andes.
	Noon.	.175	74.7	74.8	59.4		80 3	S W. . .	2	0	K. over Andes.
	3 P. M.	.172	78.8	79.2	61.2		85.6	S W. . .	2	0	K. over Andes.
	6	.184	76 7	77.2	57.2		77.0	S W. . .	2	0	K. over Andes.
	9	.240	71.0	70.3	55 9			W. . . .	1	0	
	Midn't.	.210	68.0	67.1	55.4			N W. . .	1	0	Max. temp., 79°.8; min., 64°.8.
5	3 A. M.										6 A. M., min. sky for night, 56°.6.
	6	.195	65.3	62.3	53.8		57.5	Calm . .	0	0	Very light air from northeast.
	9	.196	68.0	65.3	57.4		70.5	W. . . .	1	0	
	Noon.	.140	73.0	72.7	60.1		78.7	W. . . .	1	0	
	3 P. M.	.181	79.5	81.8	63.0		87.3	W. . . .	2	0	
	6	.148	80 0	79.9	59.4		83.0	W.S.W. .	2	0	
	9	.184	74.3	74.4	60.3			E.N.E. . .	1	0	
	Midn't.	.158	73.0	72.5	59.4			Southward .	2	0	Max. temp., 81°.0; min., 62°.0.
6	3 A. M.										6 A. M., min. sky for night, 61°.0.
	6	.152	67.5	65.0	56.7		61.0	E.N.E. . .	2	0	9 P. M., frequent flashes of lightning over Andes
	9	.162	70.2	69.5	60.8		74.5	N. by E. .	1	0	to the N.E.; also at intervals until near midnight.
	Noon.	.168	75.8	76.5	63.9		81.3	N.W. . .	1	0	Some K. over Andes.
	3 P. M.	.162	80.5	81 5	63.7		86.0	W. . . .	2	0	Very heavy K. over Andes.
	6	.122	80.8	81.4	63.3		83.4	W.S.W. .	3	0	Light K. over Andes.
	9	.162	75.7	75.8	61.2			S.W. . .	Air.	0	
	Midn't.	.100	73.6	72.5	59.7			E. . . .	1	0	Max. temp., 82°.0; min., 64°.2.
7	3 A. M.										6 A. M., min. sky for night, 60°.5.
	6	.102	68.7	64 5	54.9		61.6	N.N.W. .	1	0	Slight S. to the south.
	9	.103	70.5	68.5	58.5		71.0	W. . . .	1	C. 1 . . .	
	Noon.	.107	74.7	75 0	60.8		78 8	E. . . .	1	C. K. 2 . .	
	3 P. M.	076	79 3	80.5	63.8		86.5	W. . . .	3	C. 8 . . .	
	6	.064	79.3	79 5	59.9		80.9	W.S.W. .	3	C. 6 . . .	K. over Andes.
	9	.080	74.3	74 3	56.3			N.W. . .	2	0	
	Midn't.	.074	72.3	70.0	54.0			N.W. . .	1	0	Max. temp , 81°.3; min., 66°.3.
8	3 A. M.										6 A. M., min. sky for night, 59°.2.
	6	.060	67.3	63.0	52.5		59.2	N.E. . .	1	0	
	9	.070	69.6	68.0	55.9		72.2	N.W. . .	1	0	
	Noon.	.064	74.3	74.0	58.7		79.0	W. by S. .	2	0	K. over Andes.
	3 P. M.	.050	78.5	78.8	60.3		86.0	S.W. . .	3	K. & C. 3 .	K. over Andes.
	6	.030	77.5	78.0	60.8		78.7	S.W. . .	3	C. 3 . . .	K. light over Andes.
	9	.070	72.5	72.0	57 6			N.W. . .	1	C. S. 2 . .	
	Midn't.	.024	71.0	70.0	58.3			S.E. . . .	4	C. S. 2 . .	Thin clouds. Max. temp., 80°.0; min., 62°.5.
9	3 A. M.										The sky for this hour was not registered on account
	6	.068	65.5	64.0	56.3			W. . . .	1	K. S. 9 . .	Observations late. [of the clouds; the min.
	9	.084	67.2	65.8	57 6			N.E. . . .	2	C. K. 5 . .	Clouds breaking. [for night was 61°.5.
	Noon.	.110	71.8	71.5	59 9			W. by S. .	2	C. K. 5 . .	
	3 P. M.	.122	75.0	75.0	61.0		78.5	W. by S. .	4	K. & C. 3 .	Clouds mostly near horizon.
	6	.130	74.0	74.1	60 3		75.0	W. by W .	3	0	K. over Andes.
	9	.156	71.0	70.5	58.1			W.S.W. .	4	0	Taken at 8h. 30m.
	Midn't.	28.152	67.7	66.7	56.3			W.S.W'd .	2	0	Max. temp., 81°.0; min., 64°.0.

FEBRUARY, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Stand-ard.	Wet.	Register. Black.	Sky.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°				
*10	3 A. M.										6 A. M., min. sky for night, 57°.6.
	6	28.120	64.3	63.0	56.1		61.5	N.E. . . .	1	0	Obse.vation late.
	9	.130	67.8	67.2	59.2		71.7	N.E. . . .	1	0	
	Noon.	.142	73 6	74.3	62 6		79.2	S.W. . .	2	C. 1 . . .	
	3 P. M.	.152	79.5	80.0	63.3		88 0	S.W. . .	3	C. 5 . . .	K. over Andes.
	6	.130	82.2	81.7	64.1		84.0	W. by S. .	3	0	Light K. over Andes.
	9	.148	75.3	74.8	60.3			N.E. . . .	1	0	
	Midn't.	.106	72.7	72.0	59.4			Eastward .	1	C. 1 . . .	Max. temp., 81°.6; min., 64°.0.
11	3 A. M.										6 A. M., sky not registered on account of clouds.
	6	.143	67.3	61.7	57.2			N.E. . . .	1	C. K. & C. 6	Min. for night, 60°.8.
	9	.196	71.3	72.0	60 8		77.8	N.E. . . .	1	C. K. 1 . .	Clouds mostly over Andes.
	Noon.	.188	77.0	77.6	63.0		82.0	W. by S. .	3	0	K. over Andes.
	3 P. M.	.190	82.0	82.3	64.9		87.5	W. by S. .	4	K. S. 3 . .	K. heavy over Andes and to S.W.
	6	.186	79.4	80.4	62.2		86.4	W.S.W. .	4	C. K. 4 . .	About horizon.
	9	.150	75 5	75.5	61.2			Eastward .	1	C. K. 4 . .	
	Midn't.	.128	73.5	73.5	60.6			N.E. . . .	1	C. K. 4 . .	In every direction. Max. temp., 83°.0; min., 67°.5.
12	3 A. M.										
	6	.138	68.8	68.3	58.5			N.E. . . .	1	K. S. 9 . .	6 A. M., sky so completely over clouded as to render it useless to register the radiating thermometer. During the evening, and as late as midnight, much lightning to the eastward of the Andes. J. M. G.
	9	.185	70.5	69.3	60.1			S.W. . .	1	C. K. 8 . .	
	Noon.	.174	74.3	74.3	62.2			S.W. . .	3	C. K. 8 . .	
	3 P. M.	.140	77.5	77.7	63.0			S.W. . .	4	C. K. 7 .	
	6	.076	76.8	76.4	65.3			W.S.W. .	3	K. 8 . . .	
	9	.108	77.0	76.7	60.6			N.E. . . .	1	K. 1 . . .	
	Midn't.	.100	70.5	68.2	58.1			N. . . .	1	0	Max. temp., 78°.2; min., 67°.0.
13	3 A. M.										6 A. M., min. sky for night 59°.2.
	6	.058	66.0	65.2	58.1		61.0	N.N.E. . .	Air.	0	Light K. over Andes.
	9	.083	69 5	68.8	60.3		72.0	N.E. . . .	1	S. & K. 1 .	K. over Andes.
	Noon.	.054	74 2	74.5	63 7		79.5	W.S.W. .	1	K. & S. 3 .	K. heavy over Andes.
	3 P. M.	.057	78.5	78.8	63 9		85.0	W.S.W. .	3	K. 3 . . .	K. very heavy over Andes.
	6	.060	77.3	77.5	62.6		78.2	W.S.W. .	2	K. 1 . . .	Very heavy over Andes.
	9	.086	72.0	71.5	58.3			S. westward	3	0	
	Midn't.	.076	68.5	66.8	57.2			N.E. . . .	1	0	K. S. over Andes. Max. temp., 79°.7; min., 65°.5.
†14	3 A. M.										6 A. M., min. for night 59°.0.
	6	.058	65.0	64.2	55.4			N.E. . . .	1	C. K. 6 . .	Mackerel sky.
	9	.088	68.7	67.2	57.9		71 8	W. . . .	1	C. K. 4 . .	
	Noon.	.092	73.5	73.4	62 2		78.5	S.W. . .	2	C. K. & K. 2	K. heavy over Andes.
	3 P. M.	.091	78.5	78 5	63.0		83.0	S.W. . .	3	K. 4 . . .	K. very heavy over Andes.
	6	.056	77.2	77.6	61.2			S W. . .	2	K. & K. S. 8	Very heavy over Andes.
	9	.094	71.0	70.8	58.3			W. . . .	2	0	S. to the southward.
	Midn't.	.094	70.0	67.2	58.1			N'd and E'd	1	0 . . .	
15	3 A. M.										6 A. M., again so cloudy as to render observations
	6	.198	65.3	61.2	54.5			N. E. . .	1	K. S. 10 . .	of radiating thermometer useless; but the min.
	9	.230	66.2	63.2	57.4			W. . . .	1	C. K. S. 9 .	sky for night was 56°.7.
	Noon.	.217	70.8	70 3	60 1		75.5	E. . . .	2	K. & C. K. 3	K. heavy over Andes.
	3 P. M.	.214	74 3	73.7	61.5			W. by S. .	4	K. & C. K. 8	K. very heavy over Andes.
	6	.170	74.0	74.2	62.4			W.S.W. .	2	K. & C. K. 8	
	9	.192	70 7	70.2	58.1			E. . . .	1	S. 2 . . .	
	Midn't.	28.182	69.0	67.5	57.2			N.E. . . .	1	0	Some slight C. S. Max. temp., 75°.0; min., 60°.0.

* About 3h. 30m. P. M., a light earthquake shock was felt by many persons in Santiago: but it was not perceived by any one in this house.

† 6 A. M., sky for this hour not registered on account of clouds; min. for night, 59°.0. At 4 P. M., a heavy thunder-storm over the Andes. Snow falling rapidly on the mountains E.N.E.

J. M. G.

9 P. M., lightning over the Andes to the eastward.

FEBRUARY, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Standard.	Wet.	Register. Black.	Register. Sky.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°				
16	3 A. M.										Andes to the east covered with snow. 6 A. M., min. sky for night 56°.8.
	6	28 228	64.5	63.5	54.5		58 3	N.E. . . .	1	C. S. 2 . .	
	9	.238	67.8	66.8	57.6		69.7	N.E. . . .	1	C. 3 . . .	
	Noon.	.236	72.2	72.0	61.2		77 2	S.W. . .	1	K. & C. 2 .	K. over Andes.
	3 P. M.	.210	76.3	76.5	62.4		82.5	S.W. . .	2	K. & C. 4 .	K. heavy over Andes.
	6	.202	76.2	76.3	62.0		77.5	W.S.W. .	2	K. 2 . . .	Heavy over Andes.
	9	.242	72.0	71.7	58 3			E. . . .	1	0	
	Midn't.	.186	66.2	67.9	57.9			E. by N. .	1	0	15 minutes late. Max. temp., 78°.0; min., 64°.3.
17	3 A. M.										6 A. M., min. sky for night 58°.5.
	6	.154	64.7	63.2	56.1		59 3	N.E. . . .	Air.	0	
	9	.160	68.3	67.7	58.5		73.2	N.E. . . .	1	0	
	Noon.	.124	73 5	74.0	61 5		80.2	S.W. . .	3	0	
	3 P. M.	.094	79.5	80 0	62.0		84.7	S.S.W. . .	4	C. K. 1 . .	Mostly over Andes.
	6	.080	82.0	81.6	61.7			W.S.W. .	3	C. 8 . . .	
	9	.150	73.8	74.2	54.7			S.E. . . .	1	0	
	Midn't.	.104	71.9	70.3	57.2			Calm . .	0	0	Max. temp., 82°.5; min., 63°.5.
18*	3 A. M.										
	6	.170	66.3	64.2	53.6		58 8	N.E. . . .	Air.	0	
	9	.182	68 3	67.5	55.2		72.0	S.W. . .	1	0	
	Noon.	.186	73 8	73.7	59 9		78.8	S.W. . .	4	K. 1 . . .	Over Andes.
	3 P. M.	.172	77.0	77.5	63.5		81 6	S.W. . .	6	K. 1 . . .	Over Andes.
	6	.156	74 8	75.5	62.6		74.5	S.W. . .	3	K. & C. S. 3	
	9	.195	71.0	70.7	59 9			N.E. . . .	1	C. K. S. 10 .	
	Midn't.	.180	70.3	70.0	59.4			S. westward	1	C. K. 9 . .	Thin clouds. Max. temp., 78°.0; min., 63°.5.
19†	3 A. M.										
	6	.214	66.8	63.7	55.2			W. . . .	1	K. 5 . . .	
	9	.223	68.7	68.0	59.2		72.8	S.W. . .	1	K. 1 . . .	Over Andes.
	Noon.	.229	73.5	73.7	58.3		79.0	N.E. . . .	1	K. 1 . . .	Heavy over Andes.
	3 P. M.	.216	78.2	79.0	61.2		83.2	W. . . .	2	K. 1 . . .	Heavy over Andes.
	6	.180	79.3	79.2	60.1		80.4	W. . . .	2	0	Light K. over Andes.
	9	.212	74 6	74.8	60.3			N.E. . . .	Air.	0	
	Midn't.	.176	72.3	71.0	56.9			Northward .	1	0	Max. temp., 79°.7; min., 63°.4.
20	3 A. M.										6 A. M., min. sky for night, 59°.8.
	6	.122	66.3	65.2	55.2		60.3	N.E. . . .	1	0	
	9	.150	70.3	70.5	58.7		74.3	N.E. . . .	1	0	
	Noon.	.156	76 0	76 8	60.6		81.7	E. . . .	1	0	
	3 P. M.	.126	81.7	82.7	63.7		85.8	W. . . .	5	0	K. forming over Andes.
	6	.156	82.4	82.4	62.6		80.1	W. . . .	2	0	
	9	.153	75.7	76.0	61.2			N.E. . . .	1	0	
	Mid'nt.	.110	73.3	72.4	58.5			N. . . .	1	0	Max. temp., 83°.5; min., 65°.5.
21	3 A. M.										6 A. M, min. sky for night 60°.0.
	6	.080	67.8	67.0	56.3		61.8	E. . . .	Air.	0	
	9	.093	71.5	71.0	59.9		77.0	W. . . .	1	0	
	Noon.	.102	77.0	78.2	63.0		82.5	W. . . .	1	0	
	3 P. M.	.084	82.5	84.0	62.8		89.5	W. . . .	3	0	K. forming over Andes.
	6	.080	82.7	83.5	63.5		82.1	W.S.W. .	2	0	
	9	.134	77.0	76 8	59.9			N.E. . . .	1	0	
	Midn't.	28.126	74.5	72 0	56.5			N.N.W. .	1	0	Max. temp., 84°.6; min., 67°.7.

* Min. sky for night, 57°.5. At 18h. 4m. 28s. M. G. T., an earthquake, preceded by a continuous and low rumbling sound like very distant thunder. The noise came from the westward, and lasted probably twenty seconds.

A. MACR.

† 6 A. M., sky not registered on account of clouds; min. for night, 60°.0. 7h. 25m. A. M. Santiago time, an earthquake shock, short and not so violent as last night. It was not accompanied by noise, and as the neighbors did not notice it, I at first supposed it imaginary. It was more severe across the Mapocho to the northward.

E. R. S.

FEBRUARY, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Stand ard.	Wet.	Register. Black.	Sky.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°				
22	3 A. M.	28 103	72.5	69.1	55.2			N.W. . .	1	0	6 A. M., min. sky for night 60°.8.
	6	.110	68.5	67.5	55 3		61.0	N.E. . . .	Air.	0	
	9	.134	72.0	71.5	57.9		75.0	S.W.? . .	2	0	Smoky atmosphere. Taken at 9h. 30m.
	Noon.	.168	76.3	77.3	59.2		82 0	W.S.W. .	2	0	
	3 P. M.	.158	80.0	80 3	58.1		83 5	W. by S. .	6	0	Heavy K. over Andes.
	6	.146	78.8	78.8	57.4		78.8	W. by S. .	3	0	Light K. over Andes.
	9	.183	77.7	76.8	55 4			N.E. . . .	1	0	
	Midn't.	.124	68.8	68.6	55.6			N. . . .	1	0	Max. temp., 81°.0; min., 63°.3.
23	3 A. M.										6 A. M., min. sky for night 53°.2.
	6	.094	64.0	63.0	52 5		55.7	N.E. . . .	1	C. S. 1 . .	
	9	.130	68.0	67.5	55 6		72 7	N.W. . .	1	0	Atmosphere very smoky.
	Noon.	.124	74.0	74.7	59.2		79.2	E. . . .	1	0	Do. do.
	3 P. M.	.110	79.5	80.3	60 3		84.6	S.W. . .	2	0	K. over Andes.
	6	.100	78.7	79.1	60 3		78.5	W.S.W. .	3	0	
	9	.144	71 5	71.3	57.9			Calm . .	0	0	
	Midn't.	.118	67.8	66.8	56.1			N.E. . . .	Air.	0	Max. temp., 80°.7; min., 64°.8.
24	3 A. M.										6 A. M., min. sky for night 56°.5.
	6	.084	64.8	63.7	53.8		58 3	N.E. . . .	1	0	
	9	.104	68.5	67.5	57.6		72 0	W. by S. .	1	0	Atmosphere smoky.
	Noon.	.103	74.0	74.3	59.7		79.0	W. by S. .	3	0	Do. do.
	3 P. M.	.094	79.7	80.7	61.0		84.2	S.W. . .	4	0	Do. do.
	6	.078	78.7	79.2	59.0		79.5	S.W. . .	3	0	Do. do.
	9	.106	72 7	72.7	58.7			N.E. . . .	1	0	Do. do.
	Midn't.	.062	71.2	69.0	57.9			N.E. . . .	1	0	Do. do. Max. temp., 81°.0; min., 65°.3.
25	3 A. M.										6 A. M., min. sky for night 55°.6.
	6	.042	64.3	61.7	53.6		57.5	Eastward .	Air.	0	Observation late.
	9	.062	68 2	67.2	57.4		69.5	N.W. . .	1	0	Atmosphere smoky.
	Noon.	.060	73 8	74 6	60.1		79.2	N.W. . .	2	0	Do. do.
	3 P. M.	.056	79.5	80.7	61.7		83 8	W. . . .	3	0	Do. do. K. over Andes.
	6	.044	79.2	79 5	59.0		79.5	W.S.W. .	3	0	Smoky.
	9	.070	73.0	73.0	59.4			S. . . .	1	0	
	Midn't.	.030	71.0	69.5	54.5			N.W. . .	1	0	Max. temp., 81°.0; min., 63°.7.
26	3 A. M.										6 A. M., min. sky for night 57°.2.
	6	.040	65.3	64.2	54.0		58.0	N.E. . . .	1	0	Atmosphere smoky.
	9	.074	68.7	68.0	57.9		69.3	N.W. . .	1	0	Do. do.
	Noon.	.094	73.4	74.0	61.5		78 4	W. by S. .	2	0	Do. do.
	3 P. M.	.076	78.8	79.7	62.2		83.6	W. . . .	5	0	K. heavy on Andes.
	6	.080	77.5	77.7	60.8		78.0	S.W. . .	3	0	K. over Andes, and smoky.
	9	.142	71.0	70.5	57.6			N.E. . . .	1	0 . . .	Smoky.
	Midn't.	.106	67.0	67.0	56.9			N. . . .	1	0	Do. Max. temp., 79°.7; min., 64°.3.
27	3 A. M.										6 A. M., min. sky for night 55°.2.
	6	.100	63.6	61.9	54.9		57.0	N.E. . . .	Air.	C. K. S. 1 .	Atmosphere smoky. Observation late.
	9	.118	66.5	64.5	56.1		67.0	W. . . .	1	C. K. 6 . .	
	Noon.	.133	71.2	70.3	59.4			W. . . .	1	C. K. 8 . .	
	3 P. M.	.135	74.7	75.3	61.2		79 8	W. . . .	2	C. K. 4 . .	Smoky to the southward.
	6	.122	76.2	76.0	61.2		76.3	S.W. . .	2	0	K. over Andes and smoky.
	9	.184	69.4	69.0	55.9			S.W. . .	2	0	
	Midn't.	.138	68.2	67.6	55.4			N.N.W. . .	1	0	Smoky. Max. temp., 77.°0; min., 62°.5.
28	3 A. M.										6 A. M., min. sky for night 55°.2.
	6	.126	63.7	61.8	53.4		57.0	N.E. . . .	1	0	Smoky. Observation late.
	9	.146	66.3	65 1	55 3		67.0	W. . . .	1	0	Smoky.
	Noon.	.132	71.5	71 5	60.1		75.5	W. . . .	1	0	K. over Andes; smoky.
	3 P. M.	.140	77.0	77.2	61.0		83.2	W. . . .	3	K. 1 . . .	Over Andes; smoky.
	6	.118	76.3	76.5	59.4		75.5	S.W. . .	3	K. & C. S. 1	K. over Andes.
	9	.164	69.5	69.7	55.3			S.E. . . .	1	0	
	Midn't.	28.120	67.5	66.5	55.9			N.E. . . .	1	0	Smoky. Max. temp., 78°.3; min., 60°.0.

MARCH, 1850.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Register. Black.	Register. Sky.	Direction.	Force.		
		Inches.	°	°	°	°	°				
1	3 A. M.										6 A. M., min. sky for night, 54°.5.
	6	28.138	62.6	61.3	52.7		55.8	N.E. . .	1	C. S. 1 . .	Observations late. Smoky.
	9	.157	67.3	66.4	57.4		69.6	S.W. . .	1	0	Smoky.
	Noon.	.175	71.5	71.1	59.2		75.8	S.W. . .	3	0	K. over Andes.
	3 P. M.	.156	74.5	74.7	60.3		79.3	W.S.W. .	6	K. 1 . . .	Over Andes.
	6	.160	70.7	70.5	56.3		68.7	S.W. . .	4	K. & C. 4 .	Light C. driving from west.
	9	.206	66.8	66.7	56.3			E. . . .	1	K. S. 3 . .	
	Midn't.	.192	65.0	66.6	52.9			S.E. . . .	2	C. S. 10 . .	Max. temp., 75°.4; min., 61°.1.
2	3 A. M.										6 A. M., min. sky for night, 54°.5.
	6	.236	62.0	58.8	52.5		54.6	S.E. . . .	1	C. K. & C. S 5	
	9	.262	64.0	62.3	54.3		66.7	S.E. . . .	1	C. & C. K. 6	
	Noon.	.235	67.5	67 7	56.7		71.8	S.E. . . .	1	C. 4 . . .	
	3 P. M.	.218	72.9	73.0	57.6		78.4	W. . . .	2	K. & C. 2 .	
	6	.196	73.7	74.0	60.6		73.0	S.W. . .	2	0	K. over Andes.
	9	.222	70.2	70.0	58.5			E. . . .	1	0	
	Midn't.	.204	68.6	63.3	55.9			N. . . .	1	0	Max. temp., 75°.0; min., 59°.7.
3	3 A. M.										6 A. M , min. sky for night, 55°.0.
	6	.196	62.7	60.3	53.6		55.5	S.E. . . .	1	0	
	9	.208	65.5	64.5	57.2		67.3	W. . . .	2	C. K. 1 . .	
	Noon.	.211	70.2	70.6	59.4		75.2	S.E. . . .	1	K. 1 . . .	
	3 P. M.	.194	75.5	76.2	59.7		80.8	S.W. . .	6	K. & C. 3 .	
	6	.206	75 2	75.7	59.0		75.6	W. . . .	2	K. 3 . . .	
	9	.254	72.6	71.3	57.2			E. . . .	Air.	0	
	Midn't.	.250	70.5	69.6	53.1			N'd and E'd	Air.	0	Max. temp., 77°.1; min., 60°.9.
4	3 A. M.										6 A. M., min. sky for night, 56°.0.
	6	.214	63.3	60.2	51.5		56.0	E. . . .	1	0	
	9	.244	66.2	64.9	57.6		67.0	N.E. . . .	2	0 . ● . .	
	Noon.	.222	70.0	71.5	59.0		78 2	E. . . .	2	0	
	3 P. M.	.190	72.8	76.7	59.4		82.7	S.W. . .	2	K. 1 . . .	Over Andes.
	6	.174	74.3	77.4	59.0			W.S.W. . .	2	0	K. over Andes.
	9	.204	72.7	72.8	57.6			Calm . .	0	0	
	Midn't.	.192	70.0	63.7	52.7			N.W. . .	3	0	Max. temp., 79°.0; min., 60°.9.
5	3 A. M.										6 A. M., min. sky for night, 55°.7.
	6	.170	63.7	62.5	52.7		56.5	N.E. . . .	Air.	0	
	9	.191	67.7	68.0	57.2		73.7	S.E. . . .	1	0	
	Noon.	.185	73.6	74.2	59.2		81.0	S.W. . .	1	0	
	3 P. M.	.162	79.8	80.0	59.7		85.5	W. . . .	6	0	K. over Andes.
	6	.144	78.3	78.7	59.2		77.3	S. by W. .	2	0	Light K. over Andes.
	9	.146	73.3	74.0	59.0			N.E. . . .	1	0	
	Midn't.	.116	69.4	69.2	51.8			W. . . .	1	0	Max. temp., 81°.0; min., 64°.1.
6	3 A. M.										6 A. M., min. sky for night, 55°.0.
	6	.140	63.5	62.4	52.0		55.8	N.E. . . .	1	0	
	9	.170	67.2	66.7	56.5		71.5	S.W. . .	1	0	
	Noon.	.160	70.3	71.8	58.3		76.3	N.E. . . .	2	0	
	3 P. M.	.157	75.8	77.0	60.6		80.7	S.W. . .	6	0	K. over Andes.
	6	.249	75.2	75.7	60.1		74.4	S. . . .	2	0	Light ditto.
	9	.162	71.0	71.2	58.3			S.E. . . .	1	0	
	Midn't.	.154	68.8	67.5	52.9			N.E. . . .	Air.	0	Max. temp., 78°.3; min., 62°.5.
7	3 A. M.										6 A. M., min. sky for night, 56°.8.
	6	.148	64.0	63.2	53.6		57.7	N.E. . . .	1	C. 1 . . .	
	9	.175	66.5	65.3	57.2		6c.2	N.E. . . .	1	C. 1 . . .	Atmosphere smoky.
	Noon.	.166	71.3	76.5	60.6		75.6	W. . . .	5	C. 3 . . .	K. on Andes.
	3 P. M.	.136	76.1	76.5	61.7		80.7	S.W. . .	6	K. & C. 8 .	K. heavy on Andes.
	6	.140	75.5	75.8	61.5		73.2	S. by W. .	4	K. & C. 7 .	Do. do.
	9	.155	71.5	71.0	59.4			S. by E. .	Air.	0	Light S. to south.
	Midn't.	28.120	69.3	61.5	55.4			N. . . .	Air.	0	Max. temp., 78°.3; min., 62°.1.

MARCH, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Standard.	Wet.	Register. Black.	Sky.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°				
*8	3 A. M.										6 A. M., min. sky for night, 55°.5.
	6	28.123	63.0	61.5	53.1		56.2	E. . . .	1	0	
	9	.152	67.0	66.6	59.0		69.2	W. . . .	1	0	Smoky.
	Noon.	.132	72.5	72.7	61.7		78.3	S.W. . .	1	0	Do.
	3 P. M.	.110	78 3	78.7	61.2		84.7	W. . . .	3	K. & C. 1 .	Do.
	6	.098	78.8	79.5	62.0		79.7	S.S.W. . .	1	C. & K. 2 .	Do.
	9	.122	74.0	74.7	59.4			W. by S. .	1	0	
	Midn't.	.066	71.3	66.0	54.3			N. . . .	3	0	Max. temp., 81°.0; min., 63°.0.
9	3 A. M.										6 A. M., min. sky for night, 58°.2.
	6	.046	65.0	64.2	54 9		59.0	N.E. . .	L't air	0	
	9	.085	68.5	68 6	56.5		71.3	E. . . .	1	0	Smoky.
	Noon.	.105	74.4	74.5	59.9		79.3	S.W. . .	3	C. K. 1 . .	
	3 P. M.	.092	79.1	79.5	61.7		83.7	S.W. . .	7	C. K. 1 . .	Appearances of a snow-storm on the Andes to the
	6	.090	77.3	77.9	61.0		75.7	S. . . .	1	C. 3 . . .	Scattered. [eastward.
	9	.074	72.5	73.1	58.3			S.S.E. . .	1	C. S. 1 . .	
	Midn't.	.050	70.0	70.0	58.1			Northward .	1	0	Max. temp., 80°.5; min., 65°.0.
10	3 A. M.										6 A. M., min. sky for night, 52°.7.
	6	.062	64 0	62.5	54.3		56.3	W. . . .	1	C. 1 . . .	Late.
	9	.083	66 3	64.7	57.6		65.3	S.E. . . .	1	C. 2 . . .	
	Noon.	.104	70.7	70.2	60.8		74.2	S.W. . .	3	K. 1 . . .	Over Andes.
	3 P. M.	.092	74.5	74.7	62.0		78.0	S.W. . .	6	C. K. 1 . .	Do.
	6	.114	74 0	74.2	61.7		72 5	S.S.W. . .	2	C. K. 1 . .	Do.
	9	.064	69.2	68.7	59.7			N.W. . .	2	0	Lightning on Andes.
	Midn't.										
†11	3 A. M.										6 A. M., min. sky for night 52°.3.
	6	.028	62.5	58.0	52.9		55.0	S.W. . .	2	K. S. 4 . .	Foggy.
	9	.058	63.5	62.0	57.2		64.3	S.W. . .	2	C. S. 3 . .	
	Noon.	.073	67.3	66.5	59.4		70.2	S.W. . .	3	C. K. 5 . .	Fog and K. on Andes.
	3 P. M.	.124	67.2	66.8	58.1			S.W. . .	3	C. S. & K. 9	Clear to northward.
	6	.112	65 5	62.4	56.5			S.W. . .	3	C. S. & K. 10	
	9	.112	65.3	64.5	57.2			Calm .	0	C. S. & K. 8	Clear to the N. westward.
	Midn't.	.090	65.0	63.0	55.0			N. eastward	1	C. S. 5 . .	Clear to the N'd. Max. temp., 75°.5; min., 54°.5.
‡12	3 A. M.										6 A. M., min. sky for night, 55°.0.
	6	.104	61.5	59.5	53.4		56.5	Southward .	1	C. K. 2 . .	Smoky over Andes.
	9	.128	64.0	63.5	56.3		65.2	Southward .	1	C. K. 2 . .	Do. do.
	Noon.	.134	67.8	67.5	59.2		71.3	S.S.W. . .	2	C. K. 3 . .	Heavy over Andes.
	3 P. M.	.135	72.5	72.4	60.3		77.0	S.S.W. . .	2	C. K. 2 . .	Do. do.
	6	.130	73.0	72.7	58.0		72.0	S.S.W. . .	2	C. K. 2 . .	Do. do.
	9	.120	69.0	68.5	57.4			S.S.E. . .	1	0	
	Midn't.	.110	67.8	66.0	56.5			S'd and E'd	1	0	Max. temp., 73°.0; min., 58°.8.
13	3 A. M.	.072	65.0	63 7	55.2			Calm . .	0	0	6 A. M., min. sky for night 53°.9.
	6	.092	61.3	59.5	52.9		54.2	N.E. . . .	3	0	
	9	.110	65.2	64 7	60.1		68.7	N.E. . . .	1	0	Smoky.
	Noon.	.140	70.4	70.8	60.8		76.7	W. by S. .	3	0	Do.
	3 P. M.	.120	73.0	75.9	61.7		80.8	S.W. . .	3	0	K. over mountains; smoky.
	6	.110	72.5	74 2	59.7		72.3	S.W. . .	3	0	Smoky.
	9	.128	68.5	68.5	58.7			N.E. . . .	1	0	
	Midn't.	28.124	66.7	66.3	54.0			S.S.E. . .	1	0	Max. temp., 77°.3; min., 61°.0.

* Five minutes after midnight a meteor brighter than Jupiter was seen to start from near the nubecula major falling towards the east. At the point of starting, it exploded with a report sufficiently loud to attract attention. J. M. G.

† Observations late. Heavy cold fog driving from the S.S.W., sufficiently dense to hide Santa Lucia and other objects in the neighborhood. At 6 A. M. cumuli in strata very low down the western slope of the Andes.

‡ 6 A. M. observation late; considerable snow on the Andes.

MARCH, 1850—Continued.

DAY.	HOUR.	BAROMETER	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
			Att'd	Standard.	Wet.	Register. Black.	Register. Sky.	Direction.	Force		
		Inches.	°	°	°	°	°				
14	3 A. M.	28.116	63.5	63.3	53.1			N.N.E. . .	2	0	Min. sky for night 55°.0. Midn't, occasional light-
	6	.120	63.0	61.3	55.0		54.5	Eastward .	1	0	Smoky. [ning to the S'd and E'd.
	9	.150	64.5	64.5	58.1		65.8	S.S.E. . .	1	0	Do.
	Noon.	.131	70.2	70.0	61.7		76.8	S.W. . .	2	0	Do.
	3 P. M.	.104	75.5	76.0	62.6		81.0	S'd and W'd	2	K. 1 . . .	Over Andes, and smoky.
	6	.104	74.5	74.8	58.5		74.0	S'd and W'd	2	0	Smoky.
	9	.142	69.2	69.0	53 4			Southward .	1	0	
	Midn't.	.162	67.0	66.2	52.7			Southward .	1	0	Max. temp., 77°.2; min., 61° 0.
15	3 A. M.	.167	63.2	63.0	52.8			N.E. . . .	1	0	6 A. M., min. sky for night, 54°.8.
	6	.188	62.4	60.5	50.9		55.3	N.E. . . .	1	0	C. over Andes.
	9	.217	64.6	64.5	55.9		66.0	S.W. . .	1	0	Smoky.
	Noon.	.218	69.0	73.5	58.5		74.3	S.W. . .	2	0	Do.
	3 P. M.	.188	74.0	75.3	59.4		79.3	S.W. . .	2	0	Do.
	6	.184	75.2	75.2	59.0		74.5	S.S.W. . .	1	0	
	9	.190	70.8	68.6	55.4			N.E. . . .	1	0	
	Midn't.	.156	67.5	58.5	52.0			N. . . .	2	0	Max. temp., 76°.3; min., 60°.5.
*16	3 A. M.	.129	65.5	56.7	51.8			N.W. . .	1	0	6 A. M., min. sky for night, 53°.8.
	6	.132	62.0	60.5	a49.1		54.2	Calm . .	0	0	Smoky. a In air.
	9	.170	65.5	65.2	55.4		67.8	S.S.E. . .	1	0	Very smoky.
	Noon.	.147	70.7	76.5	60.3		75.7	S.W. . .	3	0	Smoky.
	3 P. M.	.108	77.0	77.2	61.2		81.0	S.S.W. . .	2	0	Do.
	6	.100	76.7	77.2	60.8		75.2	Southward .	1	0	Do.
	9	.120	73.2	71.7	54.2			Southward .	1	0	
	Midn't.	.106	67.8	62.6	50.9			Southward .	1	0	Max. temp., 76°.5; min., 60°.2.
17	3 A. M.			—							6 A. M., min. sky for night 54°.3.
	6	.110	62.7	59.1	46.6		55.0	N.E. . . .	Air.	0	
	9	.140	66.0	65.2	56.7		67.8	Calm . .	0	0	Smoky.
	Noon.	.174	71.3	77.4	57.2		77.0	S.W. . .	2	0	Do.
	3 P. M.	.171	76.6	81.5	59.4		81.7	S.W. . .	2	0	Light scattered C.
	6	.170	77.2	77.5	62.2		74.5	W. . . .	1	C. 1 . . .	Smoky.
	9	.176	72.7	68.7	58.5			N.E. . . .	1	0	
	Midn't.	.152	69.7	62.6	55.9			N. . . .	2	0	Max temp., 79°.0; min., 62°.0.
18	3 A. M.	.116	67.2	57.9	52.0			N.E. . . .	1	0	6 A. M., min. sky for night 55°.4.
	6	.100	65.0	63.2	50.9		56.4	Northward .	1	0	
	9	.194	66.2	65.8	56.3		68.0	Northward .	1	0	Smoky.
	Noon.	.121	71.7	77.1	59.0		77.3	W. . . .	3	0	Do.
	3 P. M.	.110	78.0	78.2	60.6		82.5	S'd and W. .	3	0	Do.
	6	.110	76.5	76.7	56.7		75.0	Southward .	2	0	Do.
	9	.105	71.0	71.5	54.2			Southward .	1	0	
	Midn't.	.098	69.1	65.7	51.3			Northward .	2	0	Max. temp., 79°.0; min., 63°.2.
19	3 A. M.	.074	64.4	63.3	49.5			Northward .	1	0	6 A. M., min. sky for night 52°.7.
	6	.096	62.2	55.9	47.4		55.3	S.E. . . .	1	0	
	9	.112	65.7	59.9	54.3		67.5	S. . . .	1	0	Smoky.
	Noon.	.120	71.4	75.2	59.0		76.7	S.W. . .	1	0	Do.
	3 P. M.	.106	77.8	85.5	59.2		83.6	E. . . .	3	0	Do.
	6	.114	78.0	78.5	55.2		74.2	E. . . .	2	0	Do.
	9	.132	72.5	65.5	54.3			N.E. . . .	1	0	
	Midn't.	28.118	69.3	62.6	51.1			N. . . .	3	0	Max. temp., 80°.0; min., 61°.0.

* 9 A. M., smoky to the southward and westward, so dense as to hide the mountains in that direction. The haze is of a reddish hue. At 10h. 15m. P. M. a very bright meteor shot from the S. eastward of the zenith in a S.W. and nearly vertical direction. J. M. G. and A. MACR.

MARCH, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Register. Black.	Register. Sky.	Direction.	Force.		
		Inches.	°	°	°	°	°				
20	3 A. M.	28.100	66.8	55.4	48.0			N.E. . . .	1	0	6 A. M., min. sky for night, 54°.5.
	6	.100	63.1	61 5	46 4		54.5	Light air .	0	0	Smoky.
	9	.150	66.0	65 6	54.6		69.2	Eastward .	2	0	Do.
	Noon.	.157	77.2	74.7	58.1		76.7	Southward .	1	0	Do.
	3 P. M.	.150	79.5	80.5	59.8		84.0	Southward .	2	0	Do.
	6	.166	78.5	79.0	59.3		75.6	Southward .	2	0	Do.
	9	.170	74.0	73.5	58.2			Light air .	0	0	
	Midn't.	.134	69.5	69.5	55.4			Northward .	2	0	Max. temp , 81°.2; min., 61°.7.
21	3 A. M.	.109	69.0	67.5	54.5			N'd and E'd	1	0	6 A. M., min. sky for night, 56°.5.
	6	.102	67.5	55.9	50.6			N.E. . . .	Air.	Lt. C. 9 . .	
	9	.096	68.2	68.0	58.0		69.5	S.W. . .	1	C. 7 . . .	Smoky.
	Noon.	.079	73.5	75.8	62 2			W. . . .	1	C. 7 . . .	Do.
	3 P. M.	.067	78.5	79.9	61.7			S.W. . .	2	C. 6 . . .	Do.
	6	.082	79.7	75.6	63 0		78.7	S.W. . .	Lt. air	C. 5 . . .	
	9	.088	74.0	67.7	58.5			E. . . .	Air.	0	Light C. to westward.
	Midn't.	.052	72.0	65.7	55 9			N.W. . .	2	0	Light C. to N.W. Max. temp., 82°.2; min., 64°.9.
22	3 A. M.	.096	67.7	60.6	52.7			N.E. . . .	1	0	6 A. M., min. sky for night, 58°.0.
	6	.044	64 7	64.2	51.8		59.0	Light air .	0	0	Smoky.
	9	.090	68.5	68.8	55.5		71.0	S.S.E. . .	1	0	Do.
	Noon.	.106	75.5	76.2	63.3		80.0	Southward .	2	0	Do.
	3 P. M.	.104	79.5	79.8	63.5		83.0	S.S.W. . .	4	S. 1 . . .	Over Andes.
	6	.120	76.2	73.2	61.7		74.3	S.W. . .	1	0	
	9	.126	72.2	72.7	58.1			Calm . .	0	0	
	Midn't.	.100	70 0	68.0	55.9			Northward .	2	0	Max. temp., 80°.2; min., 64°.5.
23	3 A. M.	.054	67.5	66.6	52.2			Northward .	1	0	6 A. M., min. sky for night, 57°.5. Heavy dew at night.
	6	.062	64.7	62.0	55.9		58.0	N.E. . .	Lt. air	0	Smoky.
	9	.100	68.5	68.7	61.2		70.5	S. . . .	Air.	0	Very smoky.
	Noon.	.120	73.2	74.0	63 0		78.0	W.S.W. .	3	0	Do.
	3 P. M.	.103	77.0	77.4	63.0		80.3	S.W. . .	3	0	Do.
	6	.111	72.8	67.7	59.4		70.7	S.W. . .	2	0	
	9	.108	68.5	62.2	57.2			N. . . .	1	0	Taken at 10.
	Midn't.	.080	66.5	57.2	53.6			N.W. . .	1	0	Max. temp., 78°.0; min., 62°.0.
24	3 A. M.	.056	63.8	56.3	52.2			N. . . .	1	0	6 A. M., min. sky for night, 54°.5.
	6	.084	64.0	60.7	51.8		55.0	N. . . .	1	C. K. 6 . .	Smoky.
	9	.120	65.0	64.2	58.5		65.3	Northward .	1	C. K. 5 . .	Do.
	Noon.	.130	70.0	69.9	60.2		74.5	S'd and W'd	4	C. K. & S. 7	Do.
	3 P. M.	.120	73.0	73.5	61.3		76.2	Westward .	3	C. K. & S. 5	Do.
	6	.110	73.2	72.0	58.2		71.2	Southward .	1	S. 1 . . .	Over Andes.
	9	.110	74.2	68.5	56.4			South . .	1	0	
	Midn't.	.106	68.0	65.8	54.5			N'd and W'd	1	0	Max. temp., 78°.2; min., 60°.5.
25	3 A. M.	.074	64.8	63.2	52.7			Northward .	2	0	6 A. M., min. sky for night, 53°.7.
	6	.094	61.8	59.6	53.1		55.2	W. . . .	1	0	Smoky.
	9	.113	64.7	64.2	58.1		65.8	N.E. . .	1	0	Do.
	Noon.	.124	70.2	70.3	62.8		75.0	S.S.E. . .	1	0	Do.
	3 P. M.	.130	74.6	74.6	62 8		77.8	S.W. . .	4	0	Do. K. over Andes.
	6	.140	71.3	66.8	58.5		68.3	S. . . .	2	0	
	9	.144	67.5	60.3	55.4			N.E. . . .	1	0	
	Midn't.	.130	63.8	56.5	52.7			N. . . .	1	0	Max. temp., 76°.0; min., 57°.8.
26	3 A. M.	.100	62.5	52.7	50.4			N.E. . . .	1	0	6 A. M., min. sky for night, 52°.5.
	6	.108	60.0	57.8	47.4		53.5	Calm . .	0	0	Very smoky.
	9	.120	61.0	58.7	53.4		68.0	N.E. . . .	1	0	Do.
	Noon.	.124	65.5	65.5	60.3		70.5	Southward .	1	0	Do.
	3 P. M.	.132	72.0	71.5	62.6		75.5	S'd and W'd	4	0	Do.
	6	.126	71.0	70.3	57.8		69.0	South . .	3	0	Do.
	9	.126	66.5	65.7	55.6			S. . . .	2	0	
	Midn't.	28.112	65.2	63.5	53 4			N.W. . .	1	0	Max. temp., 73°.4; min., 58°.0.

MARCH, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Register. Black.	Register. Sky.	Direction.	Force.		
		Inches.	°	°	°	°	°				
*27	3 A. M.	28.070	63.5	61.2	50 6			Northward .	1	0	6 A. M., min. sky for night, 52°.7.
	6	.085	61.3	58.5	52.7		53.6	N E. . . .	1	0	Smoky.
	9	.096	69.8	61.2	56.7		69.3	N.E. . . .	1	0	Do.
	Noon.	.090	68.7	68.6	61.7		72.8	N.E. . . .	1	0	Do.
	3 P. M.	.079	74.3	74.7	60.8		79.6	S.W. . .	4	0	Do.
	6	.080	74.7	72.5	60.8		72.0	S.W. . .	L. airs	0	Do.
	9	.090	70.5	70.0	54.9			S.W. . .	1	0	
	Midn't.	.072	67.5	69.4	54.0			N. . . .	1	0	Max. temp., 76°.2; min., 57°.0.
28	3 A. M.	.040	63.7	55.4	49 5			S.E. . . .	1	0	6 A. M., min. sky for night, 55°.0.
	6	.020	62.2	60.2	49.3		55.0	S'd and E'd	V'ry lt	0	
	9	.110	65.5	65.2	57 6		68 3	S'd and E'd	do	0	Smoky.
	Noon.	.110	72.0	72.5	61.2		77 5	Southward .	1	0	Do.
	3 P. M.	.032	77.8	77.7	62.4		81.5	Southerly .	2	0	Do.
	6	.030	78.0	78.0	62 4		75 6	E. by S. . .	3	C. S. 1 . .	Do.
	9	.120	71.0	71.4	55.0			Southward .	2	0	
	Midn't.	.060	67.2	66.2	54.4			N'd and W'd	1	0	Max. temp., 78°.2; min., 58°.0.
29	3 A. M.	.062	64.0	63.5	52.2			Westward .	3	C. K. & S. 10	6 A. M., min. sky for night, 54°.5.
	6	.066	62.7	55.2	52.0		55.0	N.E. . . .	1	C. 1 . . .	Late.
	9	.110	62.5	61.5	54.9		61.2	N.E. . . .	1	C. K. & C. 2	
	Noon.	.134	66.1	66.2	58.7		69.0	W. by S. .	4	C. S. 1 . .	Over Andes.
	3 P. M.	.128	69.7	69.8	59.4		70 2	Southward .	3	C. K. 1 . .	Do.
	6	.126	69.7	66.8	57.6		67.2	S.W. . .	1	C. K. 1 . .	Do.
	9	.168	64.8	59.9	55.4			S. by W. .	1	C. K. 7 . .	Taken at 9h. 15m.
	Midn't.	.166	64.6	59.4	55.9			N.E. . . .	2	C. K. 9 . .	Max. temp., 71°.6; min., 59°.7.
†30	3 A. M.	.161	64.7	59 0	55.4			N. . . .	1	C. K. 10 .	
	6	.184	62.5	61.5	54.2			Eastward .	2	C. K. 10 .	*Heavy rain* over Andes.
	9	.260	63.2	62.5	57.6			N'd and E'd	1	C. K. & S. 7	
	Noon.	.240	68.2	65.7	59.4		65.2	Southward .	2	C. K. & S. 7	
	3 P. M.	.236	68.4	68.0	57.5		68.2	S.S.W. . .	3	C. K. & S. 5	
	6	.260	65.5	61.5	54.7		63.0	S.W. . .	3	C. & C. K. 3	K. over Andes.
	9	.280	63.4	62.5	53.5			S.W. . .	1	0	
	Midn't.	.276	61.2	57.0	50.9			Northward .	1	0	Max. temp., 69°.0; min., 58°.2.
31	3 A. M.	.234	59.0	56.5	46.6			Northward .	1	0	6 A. M., min. sky for night, 47°.4.
	6	.204	56.2	52.5	45.5		47.4	N.E. . . .	Air.	C. 1 . . .	To the northward.
	9	.190	59.5	57.3	52.7		57 6	N.E. . . .	1	0	Some C. to the north.
	Noon.	.172	62.6	61.5	55.2		64.5	S.W. . .	2	0	
	3 P. M.	.140	66.8	65.7	51.8		69.6	S.E. . . .	3	0	
	6	.126	66.5	62.4	50.4		63.4	E. . . .	Air.	0	
	9	.142	63.3	56.1	49.1			N. by E. .	3	0	
	Midn't.	28.138	61.0	58.2	48.6			N'd and W.	1	0	Max. temp., 68°.0; min., 53°.8.

* 6 P. M., a few light C to the north and northwest.

† Rain commenced at 3h. 30*m*. A. M., ended at 7h. 30*m*. Amount 2.04 *in*. A great quantity of snow fell on the Andes during the past 24 hours.

APRIL, 1850.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Standard.	Wet.	Register. Black.	Sky.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°				
1	3 A. M.	28.132	58.3	49.5	45.7			N.E. . . .	Air.	0	6 A. M., min. sky for night, 48°.5.
	6	.136	55.5	52.2	42.8		48.5	S.S.E. . .	2	0	
	9	.186	59.2	57.8	50 5		59.5	Southward .	1	0	Smoky.
	Noon.	.196	65.0	64.5	54.7		70.0	S S.E. . .	1	0	Do.
	3 P. M.	.177	71.0	70.8	56.5		75.5	S.W. . .	3	0	Some K. over Andes.
	6	.180	71.0	70.8	55.7		67.5	Southward .	1	0	Slight do. do.
	9	.202	66.0	65.2	52.2			Light air .	0	0	
	Midn't.	.200	63.2	62.5	50.4			Eastward .	1	0	Max. temp., 73°.0; min., 53°.5.
2	3 A. M.	.180	61.2	60.0	48.0			N'd and E'd	1	0	6 A. M.. min. sky for night, 49°.7.
	6	.188	58.5	56.6	50.4		50.1	N.E. . . .	1	C. & C. K. 1	Late.
	9	.212	61.6	60.0	54.3		62.7	N.W. . .	1	Light C. 6 .	
	Noon.	.223	66.3	66.5	57.6		71.3	S. . . .	1	C. 4 . . .	
	3 P. M.	.220	72.2	72.5	60.6		77.2	S. . . .	2	C. K. & S. 7	
	6	.236	71.0	67.7	58.1		69.5	S. . . .	1	C. 3 . . .	
	9	.236	66.0	58.5	54.0			E.S.E. . .	1	0	
	Midn't.	.218	64.0	55.9	51.8			E. . . .	1	0	Max. temp., 74°.3; min., 55°.7.
3	3 A. M.	.182	61.3	53.6	50.0			N.N.W. .	1	0	6 A. M., min. sky for night, 49°.2.
	6	.200	59.2	51.7	50.2		49.2	S. . . .	1	0	Smoky.
	9	.202	61.2	59.5	54.0		61.0	S'd and E'd.	1	0	Do.
	Noon.	.200	67.0	67.5	59.4		72.5	Light airs .	0	0	Do.
	3 P. M.	.202	72.1	72.3	61.0		75.6	S.S.W. . .	4	0	
	6	.182	69.5	69.7	56.9		68.0	Southward .	1	C. K. & S. 4	Smoky.
	9	.182	66.0	66.0	53.5			Calm . .	0	0	Late.
	Midn't.	.180	64.0	63.6	52.7			N'd and E'd	1	0	Max. temp., 73°.5; min., 55°.2.
4	3 A. M.	.172	61.5	59.7	51.6			Northward .	1	0	6 A. M., min. sky for night, 51°.7.
	6	.188	59.7	58.7	52.2		52.3	N.E. . . .	Air.	0	Late.
	9	.205	62.0	60.7	55.4		60.6	N. . . .	1	0	Smoky.
	Noon.	.171	66.3	67.3	58.7		70.7	N.E. . . .	Air.	0	Do.
	3 P. M.	.126	71.2	71.8	61.0		76.2	S. . . .	4	0	Do.
	6	.146	70.3	66.2	56.9		67.6	S.S.W. . .	2	K. S. 1 . .	
	9	.154	66.4	61.0	55.2			E. . . .	1	C. K. 8 . .	
	Midn't.	.142	65.5	59.9	54.3			N.E. . . .	1	C. K. 10 .	Max. temp., 73°.5; min., 56°.0.
5	3 A. M.	.104	63.5	59.4	53.8			S.W. . .	2	K. 10 . .	6 A. M., min. sky for night, 57°.0.
	6	.170	64.5	62.0	54.0		58.2	Southward .	1	K. 9 . . .	
	9	.182	64.7	63.5	56.7		64.5	S.S.E. . .	3	C. K. & S. 6	
	Noon.	.176	68.2	68.5	59.9			S.S.E. . .	2	C. K. & S. 8	
	3 P. M.	.164	72.5	73.5	63.0		78.0	S.E. . . .	3	C. K. & S. 7	
	6	.190	72.3	72.5	56.2			S.E. . . .	1	C. K. & S. 7	
	9	.214	68 5	69.0	55.4			Southward .	1	0	
	Midn't.	.222	65.0	66.0	54.5			N.E. . . .	1	0	Max. temp., 74°.3; min., 59°.2.
6	3 A. M.	.200	63.5	63.5	52.0			N.E. . . .	1	0	6 A. M., min. sky for night, 54°.0.
	6	.236	61.6	54.3	50.2		54.2	E. by S. .	Air.	C. & S. 1 .	
	9	.272	63.5	63.5	56.7		64.0	W. . . .	1	0	Smoky.
	Noon.	.266	62.6	68.0	59.9		71.2	N.E. . . .	Air.	0	Smoky; S. to south.
	3 P. M.	.260	73.0	73.8	61.2		77.5	S. . . .	2	0	Smoky.
	6	.266	72.0	69.8	58.1		70.5	S. . . .	2	0	C. S. to the west.
	9	.276	67.5	62.0	55.6			E.N.E. . .	1	0	
	Midn't.	.282	65.3	58.1	53.4			Calm . .	0	0	Max. temp., 75°.3; min., 59°.0.
7	3 A. M.	.274	63.5	56.3	51.8			N.E. . . .	Lt. air	0	6 A. M., min. sky for night, 53°.2.
	6	.288	61.2	60.5	50.0		53.2	Northward .	1	C. K. 2 . .	
	9	.310	62.5	61.2	54.5		61.0	N.N.E. . .	1	C. K. 2 . .	Smoky.
	Noon.	.294	65.2	65.5	57.6		68.2	Westward .	1	C. K. 2 . .	Do.
	3 P. M.	.260	69.0	69.5	59.5		72.5	Westward .	1	C. K. & S. 3	
	6	.265	69.0	69.5	55.7		67.0	S.W. . .	2	C. K. & S. 2	
	9	.232	65.2	65.2	54.6			Calm . .	0	C. K. 1 . .	
	Midn't.	28.224	64.5	62.5	53.2			N'd and W'd	1	0	Max. temp., 71°.3; min., 51.°5.

AT SANTIAGO DE CHILE.

APRIL, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Standard.	Wet.	Register. Black.	Register. Sky.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°				
*8	3 A. M.	28.190	62.5	61.5	51.4			Northward .	1	C. K. 2 . .	6 A. M., min. sky for night, 54°.0.
	6	.226	60 2	58.3	53.4			Calm . .	0	C. K. 10 .	
	9	.240	62.2	59.0	55.9			N.E. . . .	1	C. K. 10 .	
	Noon.	.229	63.2	59.9	57.6			E. by S. . .	5	C. K. 9 . .	Clouds breaking.
	3 P. M.	.187	65.9	66.3	59.7			S.E. . . .	1	C. K. 7 . .	
	6	.169	67.0	65.7	58.5			S.W. . .	1	C. & C. K. 6	
	9	.172	65.0	61.0	57.2			N.W. . .	Air.	K. S. 3 . .	
	Midn't.	.180	63.0	56.7	55.4			S.E. . . .	3	C. K. 10 .	Max. temp., 68°.3; min., 59°.2.
9	3 A. M.	.186	61.3	59.8	58.9			S S.E . .	2	C. K. 10 .	From 8h. to 8h. 30m. A. M., rain in large drops.
	6	.200	61.5	58.7	48.6			S.S.E. . .	2	C. K. 10 .	
	9	.246	60.5	58.7	52.7			S'd and E'd	2	C. K. 10 .	
	Noon.	.250	62.2	59.0	52.9			Eastward .	1	C. K. 10 .	
	3 P. M.	.254	61.5	59.2	50.9			S'd and E'd	2	C. K. 10 .	Clouds breaking.
	6	.284	61.2	59.5	50.6			S'd and E'd	1	C. K. 10 .	
	9	.366	57 6	56.5	47.5			Southward .	1	C. K. 3 . .	
	Midn't.	.330	56.0	53.2	46.2			N'd and E'd	1	S. 2 . . .	Max. temp., 67°.5; min., 53°.0.
†10	3 A. M.	.296	55.2	51.2	42.8			Eastward .	2	0	
	6	.300	53.0	44.1	42.8		49.8	E. by S. .	Air.	C. K. 5 . .	
	9	.304	55.3	54.5	50.4		55.5	N.E. . . .	1	C. K. 3 . .	Scattered.
	Noon.	.276	59.7	58.7	53.4		62.6	S.E. . . .	1	0	
	3 P. M.	.248	64.3	65.5	53 1		68.5	S. . . .	1	0	
	6	.232	63.7	59.0	48.8		60.3	S. . . .	Air.	C. S. 1 . .	
	9	.240	60.4	58.0	48.0			N.W. . .	1	0	
	Midn't	.218	57.5	56.0	44.6			N.N.W. . .	2	C. 2 . . .	Raised at S. and passed to N.E.
11	3 A. M.	.177	52.8	48.7	40.5			N.E. . .	1	0	
	6	.188	52.0	51.7	41.6		48.6	N.E. . .	1	0	
	9	.186	54.7	52.7	46.2		54 8	Eastward .	1	0	Smoky.
	Noon.	.158	61.0	60.6	53.1		65.5	Southward .	2	C. 1 . . .	Do.
	3 P. M.	.152	65.2	64.1	55.7		70.2	S.S.W. . .	3	C. 1 . . .	Do.
	6	.160	66.0	64.2	53.8		63.5	S'd and E'd	1	C. 1 . . .	Do.
	9	.146	60.0	55.4	48.5			Northward .	1	0	
	Midn't.	.196	58.0	56.8	44.6			N'd and W'd	1	0	Max. temp., 68°0; min., 47°.5.
12	3 A. M.	.112	a59.0	55.0	43.2			N'd and W'd	1	0	a Door closed. Min. sky for night, 44°.8. 6 A. M.
	6	.103	53.2	51.3	45.3		45.2	E.N.E. . .	Air.	0	wet-bulb taken in the office.
	9	.134	55.6	54.7	48.6		56.2	E. . . .	Air.	0	Very smoky.
	Noon.	.134	62.3	62.5	52.9		66.3	S.W. . .	3	0	Smoky.
	3 P. M.	.122	67.2	67.3	54.3		71.1	S. . . .	3	0	Do.
	6	.134	63.0	63.8	50.9		59.0	S. . . .	Lt. air	0	Late.
	9	.146	62.0	56.1	49.3			S.W. . .	2	0	
	Midn't.	.154	59.5	50.2	46.4			Calm . .	0	0	Max. temp., 69°.2; min., 52°.3.
‡13	3 A. M.	.138	57.3	43.0	42.8			S.E. . . .	1	Mist 10 . .	
	6	.150	52.0	48.4	42.8			Westward .	4	Mist 10 . .	
	9	.168	54.2	51.4	45.7		52.7	Westward .	2	0	Very smoky.
	Noon.	.172	58.7	58.0	54.0		61.7	Southward .	1	0	Smoky.
	3 P. M.	.154	64.5	64.0	56.7		64.2	Southward .	1	0	Do.
	6	.164	64.0	62.7	52.6		61.4	S'd and E'd	1	0	Do.
	9	.170	61.0	59.7	49.5			Northward .	1	0	
	Midn't.	28.170	60.0	58.2	47.2			N'd and W'd	L't air	0	Max. temp., 65°.2; min., 45°.5.

* 6 A. M., sky totally obscured; clouds or banks of fog hanging quite low upon some of the neighboring hills. 3 P. M., upper stratum of clouds driving from the N.W. C. K. still heavy low down the sides of the Andes.

† 6 A. M., sky not taken for night, as the instrument had been placed in the house in anticipation of rain.

‡ 3 A. M., whole atmosphere charged with a cold, heavy mist—almost a drizzle. 6 A. M., mist extremely heavy; weather raw and cold.

APRIL, 1850—Continued.

DATE.	HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Register. Black.	Register. Sky.	Direction.	Force.		
		Inches.	°	°	°	°	°				
14	3 A.M.	28.162	58.2	55.7	44.6			N'd and W'd	L't air	0	Min. sky for night, 45°.4. 6 A. M., wet-bulb in office.
	6	.168	56.0	48.4	45.5		46.6	N.E. . . .	3	0	Late.
	9	.180	57.5	56.0	51.3		56.5	N.W. . .	2	0	Smoky.
	Noon.	.171	62.3	66 6	55 9		66.3	S. . . .	1	Light C. 2 .	Do.
	3 P. M.	.157	68.7	67.8	56.7		71.2	S.W. . .	2	C. & C. K. 6	
	6	.157	66.7	64.4	55.9		62.8	S. . . .	Air.	C. K. 6 . .	
	9	.172	62.8	55.9	50.2			S.E. . .	1	0	
	Midn't.	.162	58.8	50.9	47.2			E.N.E. . .	1	0	Max. temp., 69°.6; min., 50°.5.
15	3 A.M.	.140	56.4	48.4	45.5			Northward .	1	S. 1 . . .	
	6	.176	53.5	51.0	46.2			N'd and E'd	2	Mist 10 . .	
	9	.184	54.0	53.5	48.1			S.S.E. . .	2	C. K. & S. 8	Misty.
	Noon.	.186	59.9	59.2	54.7			Westward .	3	C. K. & S. 8	Do.
	3 P. M.	.192	62.0	62.2	55.4		67.2	S.S.W. . .	5	C. K. & S. 7	
	6	.220	61.8	60.7	52.2		61.5	S.S.E. . .	3	C. K. 2 . .	
	9	.228	60.5	58.5	49.8			S.E. . . .	1	0	
	Midn't.	.208	58.2	56.4	46.4			N'd and E'd	1	0	Max. temp., 62°.3; min., 49°.5.
16	3 A.M.	.190	60.0	53.2	43.7			N'd and E'd	1	0	Min. sky for night, 44°.3.
	6	.190	55.6	44.6	42.8		44.8	N'd and E'd	1	0	Smoky.
	9	.186	56.2	54.4	51.3		54.5	N.E. . . .	1	0	Do.
	Noon.	.157	61.7	62.0	55.9		65.7	Southward .	Air.	0	Do.
	3 P. M.	.148	67.3	67.8	58.1		71.0	S.W. . .	3	0	Do.
	6	.156	67.2	64.9	55.4		63.0	Calm . .	0	0	Do.
	9	.153	62 0	55.2	50.4			S.E. . . .	1	0	
	Midn't.	.118	59.3	51.3	46.8			S.E. . . .	1	0	Max. temp., 69°.7; min., 50°.0.
17	3 A.M.	.080	56.0	46.6	43.7			S.E. . . .	1	0	Min. sky for night, 47°.4.
	6	.112	54.2	52.8	48.6		48.2	Calm . .	0	0	Late.
	9	.124	57.2	56.8	51.8		57.5	S.S.E. . .	1	0	Smoky.
	Noon.	.100	64.5	67.2	56.1		69.0	Southward .	V'y l't	0	
	3 P. M.	.084	70.2	72.0	58.0		73.2	S'd and W'd	2	0	
	6	.076	69.5	70.0	56.7		69.3	Southward .	1	0	
	9	.070	64.2	65.0	50.9			Southward .	1	0	
	Midn't.	.070	61.0	61.0	48.4			N'd and E'd	1	0	Max. temp., 72°.5; min., 53°.0.
18	3 A.M.	.044	a61.0	54.2	44.1			Eastward .	2	0	Min. sky for night, 47°.8. aDoor closed.
	6	.029	61.5	47.2	43.7		48.2	N'd and E'd	Air.	0	
	9	.034	60.3	59.2	52.0		60.5	S. . . .	Air.	0	Smoky.
	Noon.	28.023	67.3	69.8	57.6		72.7	S.W. . .	1	C. 3 . . .	Do.
	3 P. M.	27.997	72.9	74.7	58.7		74.5	S.W. . .	1	0	Do.
	6	27.998	72.2	70.9	56.7		64.7	Calm . .	0	0	Light C. to westward.
	9	28.000	67.0	66.2	52.7			S. . . .	1	0	
	Midn't.	27.994	62.8	54.0	45.9			E. . . .	Air.	0	Max. temp., 75°.6; min., 64°.5.
19	3 A. M.	.957	58.7	50 2	43.2			N.E. . . .	Air.	0	Min. sky for night, 49°.3.
	6	27.955	57 2	56.5	43.2		49.2	Calm . .	0	C. K. 3 . .	
	9	28.006	59.5	59.2	50.4		59.5	Southward .	1	C. K. 7 . .	Very smoky.
	Noon.	.126	63.8	64.3	56.9		66.5	S.S.W. . .	3	C. K. 5 . .	Smoky.
	3 P. M.	.128	66 9	67.3	59.0		69.5	S. . . .	3	C. K. 6 . .	
	6	.136	66.5	66 5	56.9		63.5	S'd and E'd	3	C. K. 7 . .	
	9	.097	62.5	62.5	51.8			Southward .	1	0	
	Midn't.	.090	60.5	60.0	50.1			Eastward .	1	0	Max. temp., 68°.2; min., 55.°2.
20	3 A. M.	.108	62.0	57.1	49.7			N'd and W'd	3	0	6 A. M., heavens obscured by fog, or C. K.—moisture settling on objects like heavy dew. The pluviometer was put out at 7 A. M., and examined about 2 P. M., after the clouds had begun to disperse. The amount of rain measured was 0.01 inch.
	6	.137	60.3	55.7	50.2			S'd and E'd	1	Fog 10 . .	
	9	.164	60.0	57.0	52.2			E.N.E. . .	1	Fog 10 . .	
	Noon.	.149	59.5	58.1	53.4			S.W. . .	2	K. 10 . .	
	3 P. M.	.147	61.9	60.6	55.6		60.0	N.N.E. . .	3	C. K. 1 . .	
	6	.142	62 7	56.7	52.7			S. . . .	1	0	K. to the west.
	9	.152	60.5	50.2	48.1			N. by E. .	Air.	0	
	Midn't.	28.128	59.0	47.6	46.4			N.E. . . .	Air.	0	Quite a heavy dew. Max. temp., 63°.2; min., 55°.0.

APRIL, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Register. Black.	Register. Sky.	Direction.	Force.		
		Inches.	°	°	°	°	°				
21	3 A. M.	28.102	56.0	44.8	43.0			E. . . .	1	0	6 A. M., min. sky for night 55°.4.
	6	.130	55.8	51.8	43.9		55.4	N'd and E'd	1	Mist 8 . .	
	9	.140	56.2	53.0	50 4			N.N.W. .	2	S. 10 . . .	Kind of mist.
	Noon.	.136	58.2	55.9	53.4			Eastward .	1	S. 10 . . .	
	3 P. M.	.100	62.0	61.2	54.9		64.5	S'd and E'd	2	0	Smoky.
	6	.098	63.8	62.3	52.6		62.5	S'd and E'd	2	0	
	9	.100	59.2	58.0	50.0			Southward .	1	0	
	Midn't.	.099	58.0	54.9	47.8			N'd and E'd	1	0	Max. temp., 63°.2; min., 47.°5.
22	3 A. M.	.092	58.2	53.2	46.8			Eastward .	2	0	6 A. M., min. sky for night 45°.5.
	6	.086	58 7	46.8	44.8		45.5	N.E. . . .	Air.	C. 6 . . .	Smoky.
	9	.122	58.0	54.7	51.1		54.6	S.E. . . .	1	C. 3 . . .	Do.
	Noon.	.106	60.2	59.1	54.0		61.4	S.W. . .	2	C. K. 8 . .	
	3 P. M.	.093	62.0	61.0	55.2		62.7	W. . . .	2	C. K. 9 . .	
	6	.086	62.0	58.7	53.1			S. by W. .	1	C. K. & S. 6	
	9	.110	60.7	53.8	50.9			N. . . .	1	C. K. 9 . .	9 P. M., clouds moving from N.N.W.
	Midn't.	.106	59.3	50.9	49.1			N.W. . .	1	C. K. 8 . .	Max. temp., 62°.7; min., 50°6.
23	3 A. M.	.067	57.6	48.4	47.2			N.W. . .	1	K. 4 . . .	
	6	.078	57.2	54.2	47.6			N.N.E. . .	Air.	K. S. 8 . .	
	9	.096	57.6	56.5	52.6			N.N.E. . .	Air.	K. S. 9 . .	
	Noon.	.092	61.2	59.6	54.7			Eastward .	2	K. S. 10 . .	
	3 P. M.	.100	61.5	61.0	55.4			Eastward .	1	S. 10 . . .	
	6	.120	63.2	58.3	54.5			S.S.E. . .	1	S. 10 . . .	
	9	.058	61.2	57.2	51.3			Calm . .	0	S. 10 . . .	
	Midn't.	.086	61.2	53.1	50.1			S.S.E. . .	1	S. 10 . . .	Max. temp., 63°.5; min., 52°.1.
24	3 A. M.	.076	59.7	51.6	49.3			Southward .	1	S. 10 . . .	6 A. M., min. sky for night 47.°2.
	6	.090	57.7	48.8	47.0		49.2	N.W. . .	Air.	C. & C. K. 7	
	9	.130	57.7	55.3	51.8			S. . . .	1	C. K. 6 . .	Mountains hidden by K.
	Noon.	.134	59.9	59.4	53.8			S.W. . .	4	C. K. & K. 8	
	3 P. M.	.138	61.3	59.4	53.8			S. . . .	2	C. K. 10 . .	
	6	.160	60.5	54.5	51.1			S. . . .	1	C. K. 10 . .	
	9	.166	59.8	51.3	49.3			Calm . .	0	C. K. 10 . .	Without distinct outline, like a dense fog.
	Midn't.	.171	58.8	50.0	48.6			E.N.E. . .	1	C. K. 10 . .	Max. temp., 61°.5; min., 52°.0.
25	3 A. M.	.171	59.3	50.0	48.4			N.N.W. .	1	C. K. 10 . .	Halo round the moon.
	6	.220	60.3	50.9	49.1			Northward .	Light.	C. K. 10 . .	
	9	.230	59 5	55.4	51.8			Calm . .	0	C. K. 10 . .	
	Noon.	.216	62.0	57.4	54.9		63.7	Southward .	1	C. K. 3 . .	Smoky.
	3 P. M.	.194	63.5	63.9	58.2		65.2	S'd and E'd	2	C. K. 4 . .	
	6	.200	62.7	56.7	51.8			S.W. . .	1	C. 4 . . .	
	9	.210	60.2	51.3	48.6			Southward .	1	C. 3 . . .	
	Midn't.	.194	59.2	49.5	47.7			N'd and E'd	1	C. K. 8 . .	Max. temp., 64°.2; min., 53°.5.
26	3 A. M.	.176	58.5	49.2	46.6			N'd and E'd	1	S. 10 . . .	6 A. M., min. sky for night, 49°.3.
	6	.181	57.0	48.0	46.4			N.W. . .	1	C.K.&C.K.S.10	Smoky.
	9	.196	56.7	54.4	49.7			Northward .	Air.	C. K. 10 .	Do.
	Noon.	.200	58.8	57.5	52.7			N.E. . .	1	C. K. 10 .	Do.
	3 P. M.	.169	60.2	59.2	53.8			Westward .	Air.	K. & C. K. 10	Do.
	6	.193	60.5	57.4	52.9			Calm . .	0	K. & C. K. 10	
	9	.200	60.0	54.0	51.1			Northward .	Air.	K. & C. K. 10	
	Midn't.	.188	59.5	53.8	50.9			N.E. . . .	1	C. K. & K. 10	Max. temp., 60°.0; min., 50°.8.
27	3 A. M.	.186	59.0	52.7	50.2			N.N.W. .	1	K. 10 . .	At 7h. 20m. A. M., commenced raining (light.) Snow
	6	.216	58.6	52.7	50.4			Eastward .	1	K. 10 . .	Late. [on the nearer Andes. Rain up to 11 A.
	9	.242	58.2	54.8	52.5			N'd and E'd	2	K. 10 . .	Rain. [M., 0.135 inch. Between noon and 3,
	Noon.	.228	61.5	62.2	53.6			Northward .	5	C. K. 9 . .	[blowing fresh.
	3 P. M.	.186	63.3	64.4	53.7			Northward .	7	C. K. & S. 9	
	6	.220	62.3	57.6	51.5			Eastward .	3	C. K. & S. 9	
	9	.230	61.5	51.5	49.1			S'd and E'd	2	C. K. & S. 4	
	Midn't.	28.228	59.8	48.1	46.6			Northward .	1	C. S. 2 . .	Max. temp., 63°.2; min., 51°.7.

APRIL, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Stand-ard.	Wet.	Register. Black.	Sky.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°				
*28	3 A. M.	28.210	60.2	45.7	43.7			Calm . .	Air.	0	6 A. M., min. sky for night, 43°.5.
	6	.200	58.4	46.8	43.7		43.5	N. and E. .	Air.	0	
	9	.198	57.0	54.3	50.6		52.5	N. and E. .	Air.	0	Smoky.
	Noon.	.175	60.2	59.4	53.6		61.2	S.W. . .	1	0	Smoky; S. to westward.
	3 P. M.	.152	63.5	63.0	55.4		66.5	S.W. . .	1	0	Do do.
	6	.160	63.4	58.7	52.9			S.W. . .	Air.	0	S. to the south.
	9	.160	59 3	57.7	48.4			E. . . .	Air.	C. S. 1 . .	
	Midn't.	.164	57.0	48.1	45.9			N.E. . . .	Air.	0	Max. temp., 64°.5; min., 50°.0.
29	3 A. M.	.154	55.7	48.6	46.2			N.W. . .	1	C. K. 4 . .	Mackerel sky. 6 A. M., min. sky for night, 47°.2.
	6	.182	53.2	46.2	43.5		48.0	Calm . .	0	C. K. 7 . .	Peculiar clouds.
	9	.220	55.1	56.3	51.3		56.2	N'd and W'd	1	C. K. 5 . .	Mackerel sky.
	Noon.	.222	61.0	63.9	55.4		60.4	Southward .	1	C. K. 2 . .	Do.
	3 P. M.	.214	64.5	66.4	56.7		68.2	S.S.W. . .	1	C. K. 1 . .	Do.
	6	.214	64.0	62 2	52.3			Southward .	1	0	
	9	.220	60.5	56.1	49.5			S.S.E. . .	1	0	
	Midn't.	.216	58.2	48.6	45.5			S'd and E'd	1	0	Max. temp., 64°.2; min., 54°.2.
30	3 A. M.	.202	58.0	48.1	†45.2			N'd and E'd	1	C. K. 2 . .	6 A. M., min. sky for night, 45°.5.
	6	.186	54.7	57.0	45.9		46.5	S'd and E'd	Air.	0	Late.
	9	.210	56.7	55.5	50.9		56.5	N.W. . .	1	C. S. 1 . .	
	Noon.	.205	62.0	62.7	55.6		65.3	S.W. . .	1	C. 1 . . .	
	3 P. M.	.190	67.6	68.3	57.4		69.3	S.W. . .	1	C. 1 . . .	
	6	.209	67.0	62.8	54.7			N.E. . . .	1	0	S. to the southwest.
	9	.214	61.5	51.3	49.1			E. . . .	1	0	
	Midn't.	28.224	60.0	50.6	46.8			E. . . .	Air.	0	Max. temp., 70°.3; min., 52°.0.

* At 6 P. M., saw a meteor just below the southern cross, passing to the southwest. It was brighter than any star then visible.
E. R. S.

† Wet-bulb taken in the office. Some few S. to the southward.

MAY, 1850.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Stand-ard.	Wet.	Register. Black.	Sky.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°				
1		28.215	56.6	48.1	44.1			N.E. . . .	Air.	0	
	6	.203	54.7	46.6	43.7		46.2	Calm . .	0	C. S. K. 1 .	
	9	.264	56.5	54.9	50.6		56.5	Southward .	Air.	C. K. 1 . .	Very smoky.
	Noon.	.240	62.2	64.9	55.2		63.2	S.S.W. . .	1	C. 1 . . .	
	3 P. M.	.210	66 5	67.5	56 4		68.5	Southward .	1	C. K. 2 . .	
	6	.208	64.5	56.5	52.5			S'd and E'd	1	C. K. 2 . .	
	9	.200	61.0	55.0	50.1			Calm . .	0	0	
	Midn't.	28.182	59.5	49.8	47.6			Eastward .	1	K. 1 . . .	Max. temp., 68°.7; min., 50°.2.

MAY, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Standard.	Wet.	Register. Black.	Sky.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°				
2	3 A. M.	28.176	a62.2	47.0	45.0			Southward .	1	0	6 A. M., min. sky for night, 44°.5. a Fire in room.
	6	.176	60.0	44.5	42.8		44.8	Calm . .	0	C. & S. 2 .	Late.
	9	.188	58.3	56.1	49.3		55.8	N.E. . . .	1	S. 3 . . .	
	Noon.	.160	63.0	66.2	54.3		64.8	W.S.W. .	2	C. & S. 3 .	
	3 P. M.	.198	66.7	67.7	54.0			S.W. . .	2	C. & C. K. 8	
	6	.120	65.2	60.6	51.8			N E . . .	1	C. K. 6 . .	
	9	.118	60.7	52.7	47.4			N.E. . .	1	C. K. 8 . .	
	Midn't.	.116	59.5	52.7	47.2			N.E. . . .	1	K. S. 9 . .	Max. temp., 76°.0; min., 45°.5.
3	3 A. M.	.108	59.7	51.8	47.4			N.E. . . .	1	C. K. S. 9 .	
	6	.100	59.5	52.7	48.6			Northward .	2	C. K. S. 9 .	Late.
	9	.082	59.5	54.9	52.0			S'd and E'd	1	K. S. 10 .	
	Noon.	.108	61.5	58.2	54.9			S'd and E'd	1	K. S. 10 .	
	3 P. M.	.100	63 7	60.6	56.1			S.S.E. . .	1	S. 10 . .	
	6	.148	62.0	56.3	51.0			E. . . .	1	K. 10 . .	* Rain.
	9	.157	62.3	56.0	52.7			N.E. . . .	1	K. 9 . . .	
	Midn't.	.138	61.5	55.5	48.1			N.N.W. .	3	K. 3 . . .	† Max. temp., 76°.4; min., 45°.1.
‡4	3 A. M.	.158	62.2	52.7	47.1			Eastward .	2	K. 10 . .	
	6	.196	62.3	52.8	50.2			S.E. . . .	1	K. 10 . .	Clouds driving from southward and westward.
	9	.298	59.8	53.3	50.0			Southward .	1	K. 10 . .	
	Noon.	.296	59.7	58.5	54.0			Eastward .	1	K. 10 . .	
	3 P. M.	.192	62.5	58.8	54.0			S.W. . .	1	K. 10 . .	Clouds driving from southward and westward.
	6	.180	61.1	56.5	53.6			Calm . .	0	K. 9 . . .	Clouds breaking.
	9	.179	59.5	52.7	50.0			S.W. . .	1	K. 5 . . .	
	Midn't.	.193	58.7	57.0	49.7			Calm . .	0	K. 3 . . .	Max. temp., 61°.2; min., 52°.0.
5	3 A. M.	.210	57.8	49.3	46.4			Eastward .	2	K. 10 . .	
	6	.230	57.3	50.2	48.8			Eastward .	1	K. 10 . .	Late.
	9	.262	58.2	51.8	50.1			S'd and E'd	1	K. 10 . .	‖
	Noon.	.284	58.2	55.9	54.0			Eastward .	1	K. 10 . .	
	3 P. M.	.230	62.1	58.1	55.2			Eastward .	Air.	K. 8 . . .	
	6	.226	60.2	55.4	50.3			S'd and E'd	1	K. 10 . .	
	9	.250	59.2	53.5	49.7			Eastward .	1	K. 10 . .	
	Midn't.	.266	59.3	53.6	49.2			N.E. . . .	1	K. 10 . .	Max. temp., 61°.2; min., 49°.5. Drizzling rain.
6	3 A. M.	.288	61.0	53.2	48.8			N'd and E'd	2	K. 10 . .	
	6	.314	61.3	52.0	50.9			N.E. . . .	3	K. & C. K. 7	Clouds coming from southwest.
	9	.318	59.5	54.7	52.2			N.E. . . .	2	K. & C. K. 6	
	Noon.	.275	61.0	62.8	57.6		61.3	Westward .	Air.	C. K. & C. S. 3	
	3 P. M.	.252	63.4	63.8	59.0		65.4	S.W. . .	Air.	K. S. & C. 4	
	6	.240	63.5	61.2	55.4			Calm . .	0	C. S. 4 . .	
	9	.255	61.2	57.9	54.9			E. . . .	1	C. S. & K. 10	
	Midn't.	.268	61.3	56.0	53 6			S.W. . .	2	K. 9 . . .	Max. temp., 67°.0; min., 51°.5.
§7	3 A. M.	.242	59.7	54.8	52.2			N.W. . .	2	K. 3 . . .	Mackerel sky.
	6	.236	56.0	50.0	49.1		49.5	Calm . .	0	C. K. 7 . .	Do.
	9	.250	57.2	57.2	55.2		57.5	N'd and W'd	1	C. 3 . . .	Peculiar.
	Noon.	.232	61.5	63.2	58.1		65.0	S'd and W'd	1	C. 3 . . .	Mackerel sky.
	3 P. M.	.200	64.2	66.0	59.0		66.0	Westward .	1	C. 3 . . .	
	6	.194	64.0	61.7	54.7			S.S.E . .	1	C. K. 3 . .	
	9	.186	62.0	56.5	53.5			N'd and W'd	1	0	
	Midn't.	28.178	60.5	54.5	50.9			N'd and E'd	1	0	Max. temp., 65.°5; min., 49°.5.

* At 3.30 P. M. commenced raining, and continued falling until 8; quantity of water, 2.103 *in.*

† At midnight, maximum of the self-register too *high*, having been placed where it received reflected heat from the white walls.

‡ About 8 A. M. rain again commenced, and for a few minutes fell with much violence; quantity, 0.073 *in.*

‖ 9 A. M., clouds lifted a little over the Andes. Much snow had fallen within the last few days. Quantity of rain, 0.062 *in.*

§ 6 A. M., min. sky for night, 49°.5. Snow very heavy on the Andes, and very low towards the base.

MAY, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Register. Black.	Register. Sky.	Direction.	Force.		
		Inches.	°	°	°	°	°				
8	3 A. M.	28.162	61.0	51.5	49.5			Eastward .	3	0	
	6	.173	57.5	49.8	47.2			N.E. . . .	1	C. 8 . . .	
	9	.182	58.4	58.0	52.0			N.E. . . .	1	C. & C. K. 8	
	Noon.	.140	62.0	61.6	56.7			S.W. . .	1	C. & C. S. 8	
	3 P. M.	.142	65.7	65.7	57.9			S.W. . .	1	C. K. 9 . .	Mackerel sky.
	6	.162	64.5	61.7	56.3			S.W. . .	1	C. K. 10 .	
	9	.184	62.1	58.6	52.2			Southward .	Air.	C. K. 8 . .	
	Midn't.	.146	61.2	57.8	54.0			N E. . . .	1	K. 10 . .	Max. temp., 67°.2; min., 50°.5.
9	3 A. M.	.194	59.8	56.3	53.6			N.E. . . .	1	K. 10 . .	
	6	.130	59.2	55.1	53.7			Calm . .	0	C. K. 7 . .	
	9										
	Noon.	.194	62.0	62.2	55.9			S'd and E'd	2	K. 10 . .	
	3 P. M.	.178	62.5	63.0	56.2			S'd and E'd	2	K. 10 . .	
	6	.184	62.0	61.2	56.1			N'u and W'd	1	K. 10 . .	
	9	.216	61.0	57.2	52.9			Northward .	1	K. 10 . .	
	Midn't.	.190	60.2	56.5	52.1			Calm . .	0	K. 10 . .	Max. temp., 66°.5; min., 49°.8.
10	3 A. M.	.180	60.0	55.0	51.2			N'd and W'd	1	K. 10 . .	Rain during the day, 0.440 in.
	6	.142	59.7	55.3	53.1			N.E. . . .	5	K. 8 . . .	Clouds moving from west.
	9	.158	60.2	57.3	54.9			N.E. . . .	1	C. K. & K. 7	
	Noon.	.131	61.7	62.0	56.9			W.N.W. .	4	K. 10 . .	Slight rain.
	3 P. M.	.190	62.0	61.0	55.6			S.W. . .	1	K. 10 . .	Rain.
	6	.178	61.0	58.7	54.5			Air . . .	0	K 10 . .	Do.
	9	.156	60.0	56.8	53 6			N.E. . . .	2	K. 10 . .	Do.
	Midn't.	.152	60.5	56.8	53.1			N.E. . . .	2	K. 10 . .	Max. temp., 66°.0; min., 54°.5.
11	3 A. M.	.065	60.3	56.7	51.8			W.N.W. .	1	K. S. 5 . .	6 A. M., a great quantity of snow fell on the Andes during the last twenty-four hours. From 6 P. M. raining at intervals, and part of the time heavily. Quantity that fell up to midnight, 0.280 in.
	6	.094	59.8	55.7	51.8			Calm . .	0	K. S. 10 .	
	9	.050	59.5	58.2	54.5			Calm . .	0	K. S. 10 .	
	Noon.	.050	61.0	61.0	54.9			Calm . .	0	K. S. 10 .	
	3 P. M.	.020	63.2	64.0	57.2			W.N.W. .	3	K. S. 10 .	
	6	.014	62.5	63.2	55.7			N.N.W. .	6	K. S. 10 .	Rain.
	9	.050	62.0	59.7	53.1			N.N.W. .	4	K. S. 9 . .	
	Midn't.	.062	63.0	57.5	51.4			W. . . .	2	K. S. 10 .	Max. temp., 67°.2; min., 54°.8. Rain.
*12	3 A. M.	.044	63 7	57.5	51.6			W.S.W. .	1	K. S. 10 .	Rain.
	*6	.038	63.0	56.1	54.9			S.W. . .	Air.	K. 8 . . .	
	9	.050	61.7	60.7	57.9			S.W. . .	1	K. & C. K. 6	Clouds from northwest.
	Noon.	.047	62.9	63.0	59.9			S.W. . .	2	K. 9 . . .	
	3 P. M.	.040	62.7	62.3	58.3			S.E. . . .	1	K. & C. K. 8	
	6	.043	51.8	59.9	55.9			Southward .	1	K. 9 . . .	Clouds from northwest.
	9	.076	61.5	58.5	55.4			E. . . .	1	K. 10 . .	
	Midn't.	.030	61.3	58.3	54.5			N.E. . . .	1	K. 10 . .	Max. temp., 63°.6; min., 55°.5.
†13	3 A. M.	.074	60.8	57.7	52.7			Northward .	2	K. 10 . .	
	6	.070	58 5	55.1	51.6			Calm . .	0	S. 10 . . .	Heavy rain.
	9	.150	57.0	54.7	50.9			Calm . .	0	S. 10 . . .	Very heavy rain.
	Noon.	.216	58.2	52.5	50.9			N'd and E'd	4	S. 10 . . .	Do do.
	3 P. M.	.280	65.8	51.1	50.4			N'd and E'd	4	S. 10 . . .	Rain.
	6	.302	63 5	48.2	45.5			N.N.E. . .	5	S. 9 . . .	Drizzling rain.
	9	.344	62.0	46.5	44.6			Northward .	2	S. 2 . . .	
	Midn't.	28.350	62.7	43.0	41.5			N'd and W'd	1	0	Max. temp., 61°.5; min., 43°.2.

* From midnight to 3 A. M. heavy rain at intervals. 6 A. M., upper stratum of clouds stationary; second stratum moving from the northeast, and lowest from southwest. 3 P. M., upper clouds stationary; middle from northwest, lowest from southeast. Midnight, quantity of rain during the day, 0.590 in.

† Rain began falling between 3 and 6 A. M. 6 A. M., very heavy rain. 9 A. M., the same, with a sudden rise of the barometer. Rain ceased at 7h. 50m. P. M. Sky at 9 P. M. nearly clear. Total rain during day, 3.610 in.

MAY, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Register. Black.	Register. Sky.	Direction.	Force.		
		Inches.	°	°	°	°	°				
14	3 A. M.	28.350	66.0	40.5	38.7			Northward .	1	0	Mountains to the eastward covered with snow; some also on the range to the westward.
	6	.367	63.8	38.3	37.8		40.5	S.E. . . .	Air.	0	
	9	.361	61.5	50.3	45.9		46.7	Eastward .	Air.	0	
	Noon.	.319	59.5	55.7	51.1		52.5	S.W. . .	Air.	0	
	3 P. M.	.274	60.7	58.8	52.0		56.3	S.W. . .	Air.	0	
	6	.242	59.4	53.7	46.6			N.E. . .	Air.	0	
	9	.208	54.0	44.0	41.7			S.W. . .	Air.	0	Late.
	Midn't.	.216	59.5	41.7	40.0			N.E. . .	Air.	0	Max. temp., 59°.5; min., 38°.7.
15	3 A. M.	.171	60.5	40.4	39.3			Northward .	Air.	0	6 A. M., min. sky for night, 38°.8.
	6	.136	60.0	41.1	40.0		40.8	W.S.W. .	2	C. 5 . . .	Mackerel sky. Late.
	9	.144	55.5	52.2	48.1		49.2	S. . . .	1	C. 7 . . .	Do do.
	Noon.	.152	59.5	58.7	54.7		57.2	Calm . .	0	C. K. 5 . .	Very smoky.
	3 P. M.	.150	62.4	61.5	56.2		60.5	S. . . .	1	C. 3 . . .	
	6	.164	61.0	55.5	49.1			Calm . .	0	C. 2 . . .	
	9	.198	59.2	50.7	47.6			Calm . .	0	C. 1 . . .	
	Midn't.	.224	59.2	50.5	46.8			N'd and E'd	1	C. K. 3 . .	Max. temp., 63°.7; min., 40°.0.
16	3 A. M.	.222	62.5	46.1	43.5			Calm . .	0	0	6 A. M., min. sky for night 44°.3.
	6	.230	60.3	44.5	43.5			N.E. . .	1	C. & C. K. 7	
	9	.232	60.0	55.9	49.7		52.2	N.E. . .	Air.	C. & C. K. 8	C. very light.
	Noon.	.206	60.5	58.7	53.6		56.6	Calm . .	0	C. & C. S. 8	Do.
	3 P. M.	.191	62.3	62.6	54.5		61.2	S.W. . .	Air.	C. & C. S. 9	Do.
	6	.184	62.2	59.5	53.1			Calm . .	0	C. S. 4 . .	
	9	.187	58.0	51.5	48.0			Calm . .	0	C. S. 3 . .	
	Midn't.	.186	61.3	47.8	44.8			Southward .	Air.	0	Max. temp., 63°.2; min., 44°.5.
17	3 A. M.	.160	62.7	44.6	41.9			Southward .	Air.	0	6 A. M., min. sky for night 41°.7.
	6	.138	61.2	42.0	40.8		41.7	Calm . .	0	0	Late.
	9	.130	57.2	55.8	50.0		52.0	Calm . .	0	0	Smoky.
	Noon.	.100	61.0	62.5	56.1		60.7	Calm . .	0	0	
	3 P. M.	.066	65.5	65.8	57.2		62.9	Calm . .	0	0	
	6	.080	63.7	61.2	53.8			Calm . .	0	0	
	9	.090	59.5	53.2	49.4			Northward .	1	0	
	Midn't.	.198	62.5	49.4	46.6			Northward .	1	0	Max. temp., 60°.2; min., 42°.5.
18	3 A. M.	.116	65.0	46.5	44.4			Calm . .	0	0	6 A. M., min. sky for night 41°.5.
	6	.100	55.6	43.6	41.2			Calm . .	0	Fog 10 . .	
	9	.114	55.7	48.5	45.5			Southward .	Air.	Fog 10 . .	
	Noon.	.107	56.8	52.8	50.2			S.W. . .	1	Fog 10 . .	
	3 P. M.	.198	63.5	54.5	51<1			S.W. . .	Air.	Fog 10 . .	
	6	.136	60.4	52.1	48.6			S.W. . .	Air.	Fog 10 . .	
	9	.118	52.7	50.0	48.4			S. eastward	Air.	Fog 10 . .	
	Midn't.	.091	57.5	50.0	48.1			N.E. . .	Air.	Fog 10 . .	Max. temp., 56°.3; min., 42°.8.
19	3 A. M.	.094	59.3	49.0	47.2			S.W. . .	1	Fog 10 . .	
	6	.110	59.0	48.7	45.0			S.S.E. . .	2	Fog 10 . .	
	9	.140	55.8	51.4	47.2			Southward .	1	S. 10 . .	
	Noon.	.154	55.2	52.0	48.6			Southward .	1	S. 10 . .	
	3 P. M.	.172	62.2	57.5	48.8			S. westward	Air.	C. S. 10 . .	
	6	.148	58.5	50.0	47.0			Calm . .	0	C. S. 10 . .	
	9	.134	58.5	47.8	44.6			Eastward .	1	C. S. 10 . .	
	Midn't.	.150	57.0	43.0	42.1			E.N.E. . .	1	0	Max. temp., 54°.5; min., 42°.2.
20	3 A. M.	.136	56.7	42.5	41.3			Eastward .	1	0	6 A. M., min. sky for night 41°.2.
	6	.163	52.3	43.5	42.6			N. westward	Air.	C. K. & S. 8	
	9	.202	53.3	52.2	46.6			Northward .	1	C. & C. S. 8	
	Noon.	.158	55.3	53.5	49.7			Southward .	Air.	C.K. & C.S. 7	
	3 P. M.	.156	57.0	55.6	50.4			S. westward	1	C. & C. K. 9	
	6	.184	61.0	54.5	49.3			Southward .	Airs.	C. & C. K. 10	
	9	.179	58.7	51.0	48.1			Calm . .	0	K. & C. K. 10	
	Midn't.	28.160	59.5	50.0	47.2			Northward .	Air.	C. K. & S. 10	Max. temp., 56°.7; min., 42°.0.

MAY, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Register. Black.	Register. Sky.	Direction.	Force.		
		Inches.	°	°	°	°	°				
21	3 A. M.	28.158	62 3	49.1	46.6			N. eastward	Air.	C. K. & S. 9	6 A. M., min. sky for night 43°.2.
	6	.172	60.2	45.2	43.1		43.2	Calm . .	0	C. K. & S. 7	
	9	.228	59.0	51.4	47.2		46.0	E.S.E. . .	2	C. K. & S. 3	
	Noon.	.242	60.5	57.1	52.5		57.8	S.S.W. . .	1	C. 2 . . .	
	3 P. M.	.210	62.1	60.7	53.4		60.2	Southward .	1	C. S. 2 . .	
	6	.224	61.5	56.5	51.8			Calm . .	0	0	
	9	.250	63.0	50.0	47.0			Northward .	1	0	
	Midn't.	.256	63.0	47.0	44.6			N.N.E. . .	1	0	Max. temp., 55°.2; min., 44°.1.
22	3 A. M.	.224	63.2	43.0	41.2			Eastward .	1	0	6 A. M., min. sky for night, 41°.7.
	6	.238	62.1	42.3	40.2		41.7	Northward .	1	0	
	9	.256	57.7	52.6	48.8		50.3	N. eastward	1	C. 1 . . .	
	Noon.	.244	59.5	58.3	53.8			Calm . .	0	C & C. S. 6	
	3 P. M.	.242	60.8	60.0	53.8			S.W. . .	Air.	C. & C. K. 6	
	6	.226	60.0	56.0	51.5			N. eastward	1	C. & C. K. 4	
	9	.232	57.2	50.4	47.2			N. westward	1	C. &. C. S. 2	
	Midn't.	.246	62.1	47.5	45.3			Calm . .	0	C. K. 6 . .	Max. temp., 60°.5; min., 42°.5.
23	3 A. M.	.243	59.0	46.9	45.3			N.W. . .	2	Mist 10 . .	
	6	.220	60.2	46.7	45.3			E.S.E. . .	3	Mist 10 . .	
	9	.234	56.7	49.3	46.8			Eastward .	1	Fog 10 . .	
	Noon.	.222	61.5	52.5	50.2			Northward .	1	Fog 10 . .	
	3 P. M.	.184	59.0	54.9	51.9			Calm . .	0	Fog 10 . .	
	6	.172	59.2	51.7	49.7			Eastward .	1	C. K. & S. 10	
	9	.178	57.0	48.6	46.2			Calm . .	0	C. K. & S. 10	
	Midn't.	.164	61.0	48.0	46.0			S'd and E'd	3	C. K. & S. 10	Max. temp., 59°.2; min., 43°.5.
24	3 A. M.	.140	58.2	48.0	46.1			S'd and E'd	1	C. K. & S. 10	From 6 P. M. through the night, "air" and "wet-bulb" taken in the court, on account of the magnetical series making at same time.
	6	.130	56.5	47.7	45.5			Calm . .	0	C. K. & S. 10	
	9	.140	55.8	53.2	50.4			N. eastward	Air.	C. K. & K. 7	
	Noon.	.150	57.6	57.0	52.0			S.W. . .	1	K. & C. K. 7	
	3 P. M.	.158	60.4	60.4	54.7			S.W. . .	1	C. K. 7 . .	
	6	.150	60.0	56.1	53.1			Calm . .	0	K. & C. K. 7	
	9	.176	61.0	52.9	49.7			S.S.E. . .	1	C. S. 1 . .	
	Midn't.	.206	64.6	50.9	48.1			N.W. . .	3	0	Max. temp., 60°.7; min., 48°.0.
25	3 A. M.	.163	63.0	48.4	45.0			Eastward .	1	S. & C. 2 .	At 5 A. M. observed a double halo around the moon. At 6 A. M., min. sky for night, 41°.6. At 9 A. M. removed wet-bulb to its customary stand on the balcony.
	6	.149	59.9	44.8	42.8		41.0	Calm . .	0	0	
	9	.170	58.0	48.0	46.4		49.2	N'd and E'd	1	C. 1 . . .	Foggy.
	Noon.	.158	60.0	62.4	53.8		58.5	Northward .	1	C. 1 . . .	Do.
	3 P. M.	.116	62.2	65.3	55.2		60.7	Southward .	1	0	
	6	.102	62.0	59.7	52.5			Calm . .	0	C. 1 . . .	
	9	.114	58.5	54.3	49.5			Calm . .	0	0	
	Midn't.	.124	61.3	48.0	44.8			Northward .	1	C. 1 . . .	Max. temp., 58°.0; min., 43°.7.
26	3 A. M.	.090	61.0	46.0	43.5			N.N.E. . .	1	C. K. 1 . .	Over mountains. 6 A. M., min. sky for night 42°.8.
	6	.100	59.0	45.2	43.0			Calm . .	0	0	
	9	.109	57.4	57.2	50.0		52.6	S.W. . .	Air.	C. & S. 3 .	
	Noon.	.098	61.3	62.8	57.6		61.6	Calm . .	0	C. & S. 6 .	
	3 P. M.	.076	63.5	65.3	55.4		60.4	S.W. . .	Air.	C. & S. 8 .	C. very light.
	6	.092	62.0	59.3	51.8			Eastward .	Air.	S. 3 . . .	
	9	.092	60.0	54.5	48.4			N.E. . . .	1	C. & S. 3 .	Halo around the moon.
	Midn't.	.074	62.6	49.3	44.1			Calm . .	0	C. S. & K. S. 8	Max. temp., 66°.7; min., 42°.8.
27	3 A. M.	.052	62.0	46.2	42.3			E. . . .	Air.	S. C. S. 4 .	
	6	.040	60.8	44.2	41.2			N.E. . . .	Air.	C. & C. S. 5	Halo around the moon.
	9	.050	59.0	53.4	49 7		52.3	N'd and W'd	1	C. S. 3 . .	Smoky.
	Noon.	.062	59.2	57.5	53.4			N'd and W'd	1	C. & S. 9 .	Do.
	3 P. M.	.038	60.5	56.2	52.2			S. . . .	1	K. & S. 10 .	
	6	.048	58.0	53.5	50.2			S.S.W. . .	2	C. K. & S. 10	
	9	.070	58.2	53.0	49.7			S'd and W'd	1	C. K. & S. 10	
	Midn't.	28.100	64.1	52.7	49.7			S'd and W'd	1	C. & K. S. 10	Max. temp., 60°.2; min., 44°.0.

MAY, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Register. Black.	Register. Sky.	Direction.	Force.		
		Inches.	°	°	°	°	°				
28	3 A. M.	28.132	62.8	49.8	45.2			Calm . .	0	C. K. & S. 10	Rain commenced about 4 P. M. Midnight, quantity of rain, 1.35 in.
	6	.084	59.8	48.5	44.4			N'd and E'd	2	C. K. & S. 10	
	9	.061	58.2	52.2	49.5			N. westward	2	C & C. K. 10	
	Noon.	.060	57.3	54.3	49.7			S. westward	1	K. 10 . .	Clouds from northwest.
	3 P. M.	.056	64.0	57.2	52.0			S.W. . .	1	K. & C. K. 9	Clouds breaking.
	6	.116	60.9	54.2	49.5			N. eastward	2	K. 10 . .	Rain.
	9	.146	64.7	51.7	49.7			N.E. . . .	Air.	K. 10 . .	Do.
	Midn't.	.136	65.7	50.7	49.1			N.E. . . .	Air.	K. 10 . .	Do. Max. temp., 58°.0; min., 49°.5.
*29	3 A. M.	.138	64.5	49.7	47.2			S.S.W. . .	3	K. 10 . .	Hard rain.
	6	.165	62.5	49.0	46.4			E.N.E. . .	5	K. 10 . .	Do.
	9	.182	60.2	47.7	45.3			Eastward .	5	K. 10 . .	Do.
	Noon.	.196	64.2	48.5	46.2			Eastward .	4	K. 10 . .	Rain.
	3 P. M.	.196	64.0	50.0	47.2			S.S.E. . .	2	K. 10 . .	
	6	.250	57.5	47.6	46.2			S'd and E'd	1	K. 10 . .	
	9	.256	58.2	47.4	45.3			Calm . .	0	C. K. & S. 9	
	Midn't.	.292	58.0	46.7	44.8			Northward .	1	C. K. & S. 9	Max. temp., 56°.2; min., 46°.5.
30	3 A. M.	.308	60.0	46.6	44.5			Calm . .	0	C. K. & S. 10	Mountains covered with snow very low down.
	6	.350	63.5	44.2	42.8			S'd and E'd	1	C. K. & S. 10	
	9	.352	58.9	49.5	47.0			N.E. . . .	Air.	C. K. 5 . .	
	Noon.	.349	58.3	52.7	49.1		51.0	Southward .	Air.	K. 4 . . .	
	3 P. M.	.314	59.3	54.7	48.4		51.2	S.W. . .	1	K. 3 . . .	
	6	.346	58.3	51.1	43.2			S.E. . . .	1	0	K. S. over Andes.
	9	.352	59.4	42.5	40.8			N.W. . .	Lt.air.	0	
	Mid'nt.	.332	55.7	40.5	38.6			N.W. . .	2	0	
31	3 A. M.	.390	58.7	36.5	35.4			Eastward .	2	0	6 A. M., min. sky for night 33°.5.
	6	.310	57.6	33.5	33.0			Eastward .	1	C. & C. S. 3	Late.
	9	.304	57.5	44.2	43.2		40.5	S.S.E. . .	1	C. 2 . . .	Smoky.
	Noon.	.290	55.8	51.4	47.6		48.0	S.S.W. . .	1	0	C. very slight.
	3 P. M.	.218	56.5	54.2	48.1		50.8	S'd and W'd	2	C. 2 . . .	
	6	.212	54.5	48.5	43.0			Calm . .	0	0	
	9	.212	56.5	42.5	40.2			Calm . .	0	0	
	Midn't.	28.216	56.2	39.0	38.6			Calm . .	0	C. K. 8 . .	Max. temp., 54°.2; min., 34°.7.

* 9 A. M., heavy rain, with wind strong from eastward, inclining to the south. Quantity of rain fallen, between midnight and noon, 3.21 in.; between noon and midnight, 0.51 in.

JUNE, 1850.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Register. Black.	Register. Sky.	Direction.	Force.		
		Inches.	°	°	°	°	°				
1	3 A. M.	28.164	57.7	38.5	37.2			Calm . .	0	C. K. 9 . .	
	6	.172	55.2	40.0	38.6			Calm . .	0	C. K. 9 . .	
	9	.182	51.8	43.7	42.1			Calm . .	0	K. & S. 10 .	
	Noon.	.171	56.5	48.2	44.6			Calm . .	0	K. S. 10 . .	
	3 P. M.	.137	55.4	49.5	45.0			Northward .	Air.	K. & C. K. 10	
	6	.164	57.7	46.7	41.5			W.N.W. .	1	K. & C. K. 10	
	9	.171	60.3	44.2	41.5			N.E. . .	1	K. 10 . .	
	Midn't.	.165	62.5	44.0	40.0			E.N.E. . .	2	K. 10 . .	Max. temp., 49°.8; min., 40°.0.
2	3 A. M.	.133	59.8	43.7	40.0			S.E. . . .	2	K. 10 . .	Between 2 and 3 A. M. wind strong (4 or 5) from the
	6	.135	57.0	43.0	40.3			N.E. . . .	2	K. 10 . .	Late. [southward. Before 3 o'clock it had
	9	.108	54.5	46.8	45.0			Calm . .	0	K. 10 . .	[partially died away.
	Noon.	.114	62.1	49.5	46.2			S.S.W. . .	1	C. K. 9 . .	
	3 P. M.	.100	60.0	52.8	47.5			Calm . .	0	C. K. 9 . .	
	6	.118	59.0	43.5	41.2			S.S.W. . .	2	C. 1 . . .	
	9	.140	58.0	39.1	37.8			Calm . .	0	0	
	Midn't.	.192	59.2	37.0	35.4			N'd and E'd	1	0	Max. temp., 59°.5; min., 37°.5.
3	3 A. M.	.178	60.1	35.3	34.1			Northward .	1	C. 1 . . .	
	6	.166	54.7	33.2	31.1			Calm . .	0	Fog 10 . .	
	9	.167	49.7	42.0	38.4			Northward .	1	Fog 10 . .	
	Noon.	.176	58.7	47.5	45.0		45.7	N.W. . .	Air.	0	Smoky.
	3 P. M.	.165	62.0	51.6	48.1		50.4	S.W. . .	2	0	
	6	.180	59.6	48.0	42.8			Calm . .	0	0	
	9	.203	57.3	40.8	39.5			Eastward .	1	0	
	Midn't.	.295	59.3	37.0	36.3			Eastward .	Air.	0	Max. temp., 59°.0; min., 33°.0.
4	3 A. M.	.211	61.5	34.6	33.8			S.E. . . .	1	0	6 A. M., min. sky for night 33°.3.; all the roofs of
	6	.206	56.3	33.4	32.2			N. eastward	Air.	0	Frost. [the houses white with frost.
	9	.206	54.0	43.7	41.0		42.6	N. eastward	Air.	0	
	Noon.	.214	58.2	54.2	49.7		51.8	Southward .	1	0	
	3 P. M.	.200	64.2	56.8	49.5		51.5	Calm . .	0	0	
	6	.234	62.0	53.5	45.2			Calm . .	0	0	
	9	.236	62.5	44.5	41.3			Calm . .	0	0	
	Midn't.	.214	63.7	43.6	37.8			S'd and E'd	2	0	Max. temp., 57°.5; min., 32°.5.
5	3 A. M.	.188	61.2	41.2	34.3			Eastward .	1	0	6 A. M., min. sky for night, 36°.7.
	6	.188	55.5	37.7	32.0			S.S.E. . .	4	0	
	9	.188	55.1	48.6	44.1		45.6	Calm . .	0	0	
	Noon.	.152	61.0	50.2	47.0		54.2	Calm . .	0	C. S. 2 . .	
	3 P. M.	.190	63.3	60.2	50.6		56.7	Southward .	2	C. & C. S. 6	
	6	.191	60.5	52.0	44.8			N.E. . . .	Air.	S. & C. S. 4	
	9	.208	57.7	47.6	43.2			N.E. . . .	2	C. K. 8 . .	
	Midn't.	.230	64.8	45.9	41.9			Southward .	3	C. K. 10 .	Max. temp., 61°.2; min., 33°.0.
6	3 A. M.	.240	62.6	43.4	41.5			S.S.W. . .	2	K. & C. K. 10	
	6	.287	59.3	44.1	42.3			Southward .	Air.	K. & C. K. 10	Late.
	9	.300	57.2	48.0	43.7			Southward .	Air.	K. 10 . .	
	Noon.	.288	64.7	54.0	46.4			S'd and W'd	1	K. S. 10 . .	
	3 P. M.	.268	65.5	49.5	46.7			S'd and E'd	1	K. S. 10 . .	
	6	.298	59.9	46.8	43.7			Northward .	1	K. S. 10 . .	
	9	.290	57.8	45.8	42.9			Calm . .	0	K. S. 10 . .	
	Midn't.	.214	64.2	45.5	41.5			Northward .	0	K. S. 10 . .	Max. temp., 55°4.; min., 42°.4.
7	3 A. M.	.138	57.5	45.0	40.7			Calm . .	0	K. 10 . .	Midnight, quantity of rain from 9h. 30m. A. M.,
	6	.174	58.0	44.8	39.2			Northerly .	1	K. 10 . .	0.725 in.
	9	.146	56.5	47.0	45.0			Northward .	1	K. & C. K. 10	9h. 30m. rain.
	Noon.	.176	60.4	48.2	45.7			N.E. . . .	2	K. C. K. 10 .	Rain clouds from N.W.
	3 P. M.	.184	63.0	48.5	47.0			Northward .	1	K. 10 . .	Rain.
	6	.190	62.3	47.7	45.9			N. westward	Air.	K. 10 . .	
	9	.200	59.4	47.2	45.5			Eastward .	2 to 4	K. 7 . . .	Do.
	Midn't.	28.210	60.5	45.2	43.7			S.W. . .	2	K. 8 . . .	Do. Max. temp., 49°.3; min., 44°.7.

JUNE, 1850—Continued.

DATE.	HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Register. Black.	Register. Sky.	Direction.	Force.		
		Inches.	°	°	°	°	°				
8	3 A. M.	28.203	61.6	45.2	44 1			Eastward .	1	K. 10 . .	Midnight. Quantity of rain during day 0.590 in.
	6	.207	56.8	46.0	44.8			N. eastward	Air.	K. & C. K. 10	
	9	.244	57.2	50.0	47.2			S'd and E'd	1	C. K. 8 . .	Rain at intervals.
	Noon.	.241	62.5	54.0	50.6			Calm . .	0	C. K. & S. 8	
	3 P. M.	.242	65.0	54.2	50.4			Southward .	2	C. K. & S. 8	
	6	.284	60.5	49.5	47.2			S'd and E'd	3	K. S. 10 .	Heavy rain.
	9	.358	64.2	47.2	45.7			Calm . .	0	K. S. 10 .	
	Midn't.	.390	63.4	46.2	43.7			Calm . .	0	K. S. 5 . .	Max. temp., 56°.5; min., 45°.2.
9	3 A. M.	.394	64.0	45.1	42.6			Calm . .	0	K. 1 . . .	Clear.
	6	.400	60.2	42.5	38.4			Calm . .	0	C. K. 10 .	
	9	.406	55.0	49.5	44.4			Northward .	Air.	K. & C. K. 9	
	Noon.	.384	58.0	53.0	48.8			S.W. . .	1	K. & C. K. 5	
	3 P. M.	.351	58.4	54.5	49.3		51.0	S.W. . .	2	K. 1 . . .	
	6	.360	58.5	50.6	45.9			N.E. . . .	1	K. 6 . . .	
	9	.360	57.4	43.3	41.0			Eastward .	1	K. 1 . . .	
	Midn't.	.353	54.7	40.2	38.6			Southward .	Air.	K. & C. K. 4	Max. temp., 55°.6; min., 41°.0.
10	3 A. M.	.336	57.6	38.2	36.5			Calm . .	0	0	6 A. M., min. sky for night, 33°.7.
	6	.352	49.7	39.4	37.6			Calm . .	0	K. & C. K. 8	Very late.
	9	.362	50.0	45.2	41.9		41.2	Northward .	Air.	K. & C. K. 7	Late.
	Noon.	.350	60.0	51.7	47.6		46.9	Calm . .	0	0	C. very slight.
	3 P. M.	.336	62.7	55.2	48.4		50.5	Calm . .	0	0	
	6	.340	60.1	47.8	45.0			Calm . .	0	0	
	9	.376	59.2	39.5	36.7			Calm . .	0	0	
	Midn't.	.370	57.4	37.0	35.8			Calm . .	0	0	Max. temp., 53°.0; min., 35°.2.
11	3 A. M.	.360	61.0	34.2	32.1			S'd and E'd	1	0	6 A. M., min. sky for night, 33°.1. Very heavy frost.
	6	.302	50.2	31.5	29.9		33.1	N'd and E'd	1	0	
	9	.306	49.0	44.2	42.6		40.5	N. eastward	Air.	0	
	Noon.	.309	55.0	52.4	48.8		51.0	Northward .	Air.	0	Smoky to southward.
	3 P. M.	.288	58.6	56.3	51.1		53.5	Calm . .	0	0	C. very slight.
	6	.283	57.5	50.1	45.5			Calm . .	0	0	
	9	.287	54.4	43.6	41.5			Calm . .	0	0	
	Midn't.	.288	56.7	40.3	38.4			N. eastward	1	0	Max. temp., 57°.3; min., 35°.0.
12	3 A. M.	.242	58.8	38.0	35.8			S. westward	1	0	6 A. M., min. sky for night, 36°.0.
	6	.294	54.5	37.0	35.0			N. westward	1	C. S. 1 . .	
	9	.232	57.7	48.8	44.2		44.0	Calm . .	0	C. 1 . . .	Over Andes.
	Noon.	.232	59.5	56.2	54.3		53.5	Calm . .	0	C. 1 . . .	Do. smoky.
	3 P. M.	.200	64.0	60.4	57 2		55.2	Calm . .	0	C. 9 . . .	
	6	.214	61.2	55.2	50.9			Northward .	Air.	C. 1 . . .	
	9	.208	59.2	48.7	45.2			Northward .	1	0	
	Midn't.	.214	61.2	46.2	43.8			Calm . .	0	0	Max. temp., 54°.7; min., 36°.2.
13	3 A. M.	.164	57.2	41.5	39.1			Calm . .	0	0	6 A. M., min. sky for night, 39°.2.
	6	.150	52.5	40.2	38.5			Calm . .	0	C. K. 4 . .	Late.
	9	.133	53.5	53.5	47.6		46.7	Northward .	Air.	Lt.C.&C.K.8	
	Noon.	.112	56.6	57.7	52.2		54.7	Calm . .	0	C. K. & C. 8	
	3 P. M.	.096	58.5	58.8	51.5			N. westward	1	C.K.&C.S.10	
	6	.116	57.3	54.6	47.4			Westward .	Air.	K. & C. K. 8	
	9	.121	61.4	47.0	44.8			Eastward .	Air.	C. K. 4 . .	
	Midn't.	.088	57.0	45.6	43.2			N.E. . . .	2	K. 10 . .	Max. temp., 60°.3; min., 41.°0.
14	3 A. M.	.115	60.0	44.2	42.6			N.N.W. .	5	C. K. 10 . .	Fog. Between 8 P. M. and midnight rain at intervals. Wind heavy, in puffs.
	6	.127	52.7	43.8	42.3			E. . . .	2	Fog 10 . .	
	9	.168	52.8	44.8	43.0			Eastward .	1	C. K. 10 .	
	Noon.	.174	54.2	51.5	46.6			Calm . .	0	C. K. 10 .	
	3 P. M.	.196	63.0	48.0	44.2			N'd and E'd	1	C. K. 10 .	
	6	.190	62.5	47.2	43.7			N'd and E'd	5	C. K. 10 .	Rain.
	9	.132	61.8	50.5	45.2			N'd and E'd	4	C. K. 10 .	Do.
	Midn't.	28.184	60.2	49.2	44.4			N. & E. . .	7	C. K. 10 .	Max. temp., 55°.0; min., 43°.4.

JUNE, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Register.		Direction.	Force.		
						Black.	Sky.				
		Inches.	°	°	°	°	°				
*15	3 A. M.	28.150	63.5	52.0	48.1			N'd and E'd	2	C. K. 10 .	Occasional light rain.
	6	.114	60.1	50.2	46.5			Calm . .	0	C. K. & S. 10	
	9	.098	58.2	53.0	48.6			N. westward	1	K. & K. S. 10	
	Noon.	.089	62.7	56.0	52.0			N. westward	1	K.C.K.K.S.10	
	3 P. M.	.055	63.4	58.1	49.7			S'd and E'd	3	K. & K. S. 10	Clouds from N.W.
	6	.123	61.7	55.8	49.3			N. by E. .	1	K. & K. S. 10	Rain.
	9	.129	62.8	52.8	48.6			E.S.E. . .	1	K. 10 . .	Do.
	Midn't.	.094	61.3	51.8	49.5			E.N.E. . .	3	K. 10 . .	Max. temp., 56°.8; min., 50°.0.
16	3 A. M.	.055	64.0	51.2	48.6			Southward .	1	K. 10 . .	Quantity of rain which has fallen during the day, 1.53 *in.*
	6	.076	61.0	52.3	51.3			Calm . .	0	K. & K. S. 10	
	9	.120	59.0	54.2	52.8			Southward .	Air.	K. & K. S. 10	Rain.
	Noon.	.144	61.3	54.7	51.9			S'd and E'd	1	K. & K. S. 10	
	3 P. M.	.150	65.2	56.0	52 7			Southward .	1	K. & K. S. 10	
	6	.154	61.2	53.2	51.9			E.N.E. . .	2	K. & S. 10 .	
	9	.204	64.1	53.5	51.7			Calm . .	0	K. S. 10 . .	
	Midn't.	.202	63.5	53.0	51.6			Calm . .	0	K. S. 10 . .	Max. temp., 56°.0; min., 50°.0.
17	3 A. M.	.206	61.2	52.5	50.2			N'd and E'd	1	K. S. 10. .	
	6	.224	59.2	52.5	50.4			Calm . .	0	K. S. 10. .	
	9	.236	58.6	54.3	51.8			N.E. . . .	Air.	K. 10 . .	
	Noon.	.226	62.4	61.6	53.6			N.E. . . .	Air.	K. & C. K. 9	
	3 P. M.	.212	64.3	60.4	53.4			Southward .	Air.	K. C. 9 . .	
	6	.243	61.8	54.4	51.3			S.W. . .	1	K. 9 . . .	
	9	.220	60.6	50.0	48.6			N.W. . .	1	K. K. S. 2 .	
	Midn't.	.229	62.3	46.5	45.3			N. eastward	Air.	0	K. S. to W'd. Max. temp., 61°.6; min., 46°.8.
‡18	3 A. M.	.191	63.5	44.0	41.9			Southward .	Air.	0 . . .	†
	6	.137	57.6	44.5	43.2			Southward .	Air.	K. & C. K. 8	
	9	.142	55.2	49.0	46.6			Calm . .	0	K. & C. K. 10	
	Noon.	.140	57.2	54.5	50.2			Southward .	1	K. & C. K. 10	
	3 P. M.	.144	59.2	53.5	50.0			Calm . .	0	K. & C. K. 10	
	6	.140	59.5	50.6	47.6			N. and E. .	1	K. & C. K. 10	
	9	.170	59.0	50.0	47.2			Northward .	1	K. & C. K. 10	
	Midn't.	.178	57.5	48.5	46.8			Northward .	3	K. & C. K. 10	Max. temp., 54°.2; min., 44°.7.
19	3 A. M.	.142	56.0	48.5	46.8			Northward .	2	K. & C. K. 10	
	6	.138	56.0	50.5	48.6			S'd and Ed	4	K. & C. K. 10	Late.
	9	.198	56.2	53.0	47.2			N.E. . .	4	K. & C. K. 10	
	Noon.	.093	60.2	57.2	50.0			N.E. . . .	1	K. & C. K. 10	
	3 P. M.	.066	59.9	57.0	51.3			N. westward	2	K. & C. K. 10	
	6	.060	61.0	54.5	49.5			Calm . .	0	K. & C. K. 10	Halo round the moon.
	9	.063	60.4	49.5	45.9			N.E. . . .	1	C.K. & C. S. 6	
	Midn't.	.057	60.4	49.6	44.1			N.N.E. . .	1	C. S. 2 . .	Max. temp., 57°.4; min., 46°.5.
20	3 A. M.	.032	61.2	42.4	40.8			Northward .	1	0	6 A. M., min. sky for night 40°.0.
	6	.010	57.7	40.4	38.6			Calm . .	0	C. 1 . . .	
	9	.132	58.1	51.5	46.8		46.9	Calm . .	0	C. 8 . . .	Very light.
	Noon.	.050	60.2	56.5	51.3		54.2	S.S.W. . .	2	C. 8 . . .	Smoky.
	3 P. M.	.080	63.5	57.0	51.4		55.0	Southward .	1	C. 8 . . .	Do.
	6	.079	60.6	52.5	48.8			S. eastward	1	C. K. & C. 10	
	9	.090	63.0	49.0	45.2			Calm . .	0	C. K. & C. 9	An indistinct halo around the moon.
	Midn't.	28.078	64.5	47.0	44.5			Northerly .	2	C. K. & S. 10	Max. temp., 58°.5; min., 44°.2.

* Midnight. Quantity of rain fallen since the beginning of the showers (6 P. M. of the 14th) 0.142 *in.*

† Midnight. Quantity of rain during the 24 hours 0.016 *in.*

‡ At 0*h.* 24*m.* 34*s.* A. M. Santiago mean time, a short, sudden, and quite violent earthquake shock, apparently coming from the eastward, though the accompanying noise may have misled the judgment as to the direction. The barometer was violently agitated, fluctuating probably through a tenth of an inch. Sky completely overcast. Shock lasted about three or four seconds. No rumbling noise preceded the tremor, as is usual. J. M. G.

Between 12*h.* 30*m.* A. M., and 2*h.* 10*m.* A. M., wind increased to a moderate gale; but at 3*h.* it was again nearly calm. From 6 P. M. till 10 P. M. a halo around the moon. J. M. G.

JUNE, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Register. Black.	Register. Sky.	Direction.	Force.		
		Inches.	°	°	°	°	°				
21	3 A. M.	28.024	61.2	47.5	45.6			N'd and W'd	1	C. K. & S. 10	Clouds driving from the southwest most of the day. Midnight. Quantity of rain during the day, 2.154 in.
	6	.033	57.4	47.2	45.3			S. westward	5	K. & fog 10	Late.
	9	.078	59.5	46.0	44.1			S. eastward	5	K. & C. K. 10	Hard rain.
	Noon.	.116	60.5	43.7	39.5			S. eastward	1	K. & C. K. 10	Do.
	3 P. M.	.127	61.8	44.0	40.8			Northward .	1	K. & C. K. 10	Do.
	6	.163	59.6	41.8	39.8			Southward .	1	K. & C. K. 10	
	9	.256	64.8	42.1	40.0			Southward .	Air.	K. & C. K. 10	
	Midn't.	.250	61.6	42.5	40.5			Eastward .	1	K. & C. K. 10	Max. temp., 47°.5; min., 41°.2.
22	3 A. M.	.232	63.0	41.6	39.5			N.W. . .	1	K. & fog 10	At 9 A. M. much snow on the Andes. Midnight. Quantity of rain that fell during day, 0.215 in.
	6	.239	62.6	40.5	38.6			Calm . .	0	K. 4 . . .	
	9	.224	54.4	44.6	41.0		40.2	N.W . . .	1	Fog & K. 5	
	Noon.	.250	59.5	50.5	45.0			Southward .	2	C. K. & S. 10	
	3 P. M.	.258	60.0	49.5	45.2			Southward .	1	C. K. & S. 10	Rain.
	6	.263	59.0	47.5	44.6			Calm . .	0	C. K. & S. 10	
	9	.312	63.5	46.5	44.4			N'd and E'd	2	C. K. & S. 10	
	Midn't.	.276	64.7	46.2	44.4			Eastward .	2	C. K. & S. 10	Max. temp., 52°.7; min., 39°.4.
23	3 A. M.	.222	60.0	45.6	44.0			Eastward .	1	C. K. & S. 10	About 1 P. M. wind commenced blowing heavy in squalls. 3 P. M. wind continued the same.
	6	.142	57.3	46.2	44.6			Calm . .	0	C. K. & S. 10	
	9	.133	56.7	47.6	45.7			N.E. . . .	Air.	K. & C. K. 10	Clouds from northwest. Midnight. Quantity of rain during the day, 1.725 in.
	Noon.	.134	59.5	50.5	46.8			N.N.E . .	3	K. & C. K. 10	Rain from northwest.
	3 P. M.	.120	60.3	49.6	45.6			N.E. . . .	8	K. & C. K. 10	Rain clouds from N.E.
	6	.090	61.0	47.5	45.3			N.N.E . .	1	K. & C. K. 10	Rain.
	9	.098	62.5	50.0	47.2			W.N.W. .	4	K. & C. K. 10	Do.
	Midn't.	.094	63.2	51.8	48.8			N.N.E . .	4	K. & C. K. 10	Max. temp., 52°.0; min., 45°.6.
24	3 A. M.	.112	65.4	53.6	50.4			N. westward	4	K. & C. K. 10	Midnight. Quantity of rain fallen during the day, 4.050 in.
	6	.146	60.6	51.8	51.3			N.N.W. .	2	K. & C. K. 10	Late; rain.
	9	.194	60.2	54.0	51.5			N'd and W'd	1	C. K. 10 .	
	Noon.	.236	64.2	53.7	51.8			Calm . .	0	C. K. 10 .	
	3 P. M.	.236	63.5	53.5	51.3			N'd and E'd	1	C. K. 10 .	Mist driving from the eastward.
	6	.268	64.0	52.3	50.6			N.N.E. . .	2	C. K. 10 .	
	9	.264	62.3	53.6	50.4			Northward .	1	C. K. 10 .	
	Midn't.	.204	60.1	50.5	49.1			Northward .	2	K. & C. K 10	Max. temp., 54°.2; min., 50°.0.
25	3 A. M.	.186	63.7	50.2	49.0			N.N.W. .	2	C. K. 9 . .	9 P. M., clouds driving from the northwestward.
	6	.130	60.0	47.6	46.0			Calm . .	0	Fog & C.K. 10	
	9	.116	59.5	52.0	49.1			N.N.W. .	1	K. S. & C. 8	Smoky.
	Noon.	.074	61.5	61.2	55.9			W.N.W. .	1	K.S. & C.K. 8	
	3 P. M.	.037	62.6	61.2	55.4			S.W. . .	Air.	K. & K S.C. 9	
	6	.036	61.8	57.7	52.9			Southward .	1	C. K. & S. 6	
	9	.038	61.6	52.2	50.0			Eastward .	2	K. C. 8 . .	Halo around the moon.
	Midn't.	28.004	61.3	52.5	48.8			N.W. . .	4	K. 9 . . .	Max. temp., 62°.2; min., 47°.0.
26	3 A. M.	27.962	62.7	52 8	47.6			W.N.W. .	6	K. 10 . .	Rain. At 2.30 A. M. commenced raining.
	6	27.993	58.4	50.0	46.0			W.N.W. .	8	K. 10 . .	Late; rain.
	9	28.080	54.0	45.2	42.8			Calm . .	0	K. 10 . .	Heavy rain.
	Noon.	.162	54.9	43.2	40.0			N'd and E'd	2	C. K. 10 . .	
	3 P. M.	.180	61.7	54.0	41.9			N.N.W. .	2	C. K. 4 . .	Clouds driving from northward and westward.
	6	.208	59.5	46.2	41.0			Northward .	2	C. K. 5 . .	
	9	.296	60.2	41.0	39.2			Eastward .	2	C. K. 3 . .	Over mountains.
	Midn't.	.376	65.0	38.5	36.3			Calm . .	0	C. K. 5 . .	Clouds driving apparently from northward, slowly. Max. temp., 53°.2; min., 39°.0.
27	3 A. M.	.390	64.0	37.5	36.1			Calm . .	0	0	
	6	.394	61.2	38.5	37.4			Calm . .	0	K. & C.K. 10	Late.
	9	.383	57.7	45.4	39.3			N. eastward	1	K. & C. K. 8	At 10h. 55m. 50s. P. M. felt a short, quick earthquake, of scarcely more than a second's duration, followed by the sound, quite faintly.
	Noon.	.314	60.6	56.8	46.6			N. westward	1	K. & C. K. 8	
	3 P. M.	.254	62.6	55.5	45.5			Westward .	Air.	K. & K. S. 9	Slight rain about 11 P. M. Quantity at midnight too slight to measure.
	6	.265	62.2	46.2	45.0			N.N.E. . .	Air.	K. & K. S. 10	
	9	.252	59.7	45.5	41.7			N.E. . . .	1	K. & K. S. 10	
	Midn't.	28.191	62.4	45.0	41.7			Westward .	1	K. & C. K. 10	Max. temp., 60°.0; min., 37°.5.

JUNE, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Register. Black.	Register. Sky.	Direction.	Force.		
		Inches.	°	°	°	°	°				
28	3 A. M.	28.167	63.5	44.5	41.4			E.N.E. . .	2	K. & C. K. 10	Drops of rain. Quantity of rain fallen during day, 1.837 in.
	6	.122	58.7	44.5	41.2			E.N.E. . .	1	K. & C. K. 9	
	9	.160	58.2	46.0	42 8			N.N.W. .	1	K. & C. K. 10	
	Noon.	.160	64.2	46.2	43.0			Northward .	3	K. & C. K. 10	Rain. Clouds driving from northward.
	3 P. M.	.205	66 2	46.0	43.0			Eastward .	2	K. & C. K. 10	Hard rain.
	6	.200	63.5	47.0	44.2			Eastward .	5	K. & C. K. 10	
	9	.232	64.5	46.3	44.0			Eastward .	2	K. & C. K. 10	
	Midn't.	.265	67.0	45.5	44.1			Calm . .	0	K. & C. K. 10	Max. temp., 51°.2; min., 44°.2.
29	3 A. M.	.284	68.5	44.6	43.7			Eastward .	2	K. & C. K. 10	
	6	.274	62.5	43.0	44.4			Calm . .	0	Fog 10 . .	
	9	.270	62.3	49.5	45.5			S.W. . .	1	K. & fog 10	
	Noon.	.232	62.2	54.0	47.6			S.W. . .	Air.	K. & C. K. 10	
	3 P. M.	.187	63.2	53.3	48.8			S.W. . .	1	K. & K. S. 10	
	6	.206	60.8	49.7	47.2			N.N.E . .	2	K. & K. S. 10	
	9	.194	59.7	48.5	46.2			W. . . .	2	K. S. 2 . .	
	Midn't.	.180	58.4	45.5	44.6			Calm . .	0	C. K. & K. S. 4	Max. temp., 53°.5; min., 45°.8.
30	3 A. M.	.191	64.6	46.9	45 0			S.W. . .	1	K. & fog 10	
	6	.181	61.4	46.0	43.2			S. westward	1	K. & fog 10	
	9	.188	62.5	46.5	43.2			Southward .	2	K. & fog 10	
	Noon.	.144	63.5	57.6	49.5			N.N.W. .	1	C. K. & S. 10	
	3 P. M.	.130	61.5	53.2	47.2			S.S.E. . .	1	C. K. & S. 9	
	6	.158	63.0	48.0	45.2			S.S.W. . .	1	C. K. & S. 9	
	9	.110	61.0	47.2	44.8			Eastward .	2	C. K. & S. 10	
	Midn't.	28.074	64.2	46.5	44.2			Calm . .	0	C. K. & S. 10	Max. temp., 57°.5; min., 45°.2.

JULY, 1850.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Register. Black.	Register. Sky.	Direction.	Force.		
		Inches.	°	°	°	°	°				
1	3 A. M.	28.050	64.0	44.8	42.5			Calm . .	0	C. K. 10 .	The noon obeservations were not taken until with-
	6	.070	58.7	45.0	42.7			S'd and E'd	2	C. & C. K. 9	Late. [in 20m. of 1, on account of magnetical
	9	.075	56.0	48.2	45.0			S. westward	Air.	C. & C. K. 10	[observations interfering. Slight rain com-
	Noon.	.064	58.6	54.4	48.1			Calm . .	0	K. & C. K. 9	[menced about 11 P. M.
	3 P. M.	.070	58.5	55.8	48.4			S.W. . .	1	K. & C. K. 7	
	6	.068	58.7	50.0	46.6			Eastward .	1	C. K. & K. S. 6	
	9	.101	58.6	48.0	44.8			N.E. by E. .	2	C. K. & K. 10	
	Midn't.	.120	56.6	47.0	44.8			N.E. . . .	1	K. & C. K. 10	Few drops of rain. Max. temp., 58°.4; min., 43°.5.
2	3 A. M.	.160	61.0	46.3	44.6			N.E. . . .	5	N. 10 . .	Between 2 and 3 A. M. rain increasing in violence.
	6	.210	57.6	45.0	43.2			N.W. . .	2	C. K. 10 .	Much snow on Andes to the E'd. Quantity of
	9	.270	55.2	45.5	44.1			Calm . .	0	C. K. 10 .	Clouds driving from S'd and W'd. [rain during day
	Noon.	.300	60.5	54.0	46.6			Calm . .	0	C. K. 10 .	[0.735 in.
	3 P. M.	.300	61.2	58.0	48.1			N.N.W. . .	2	C. K. 4 . .	
	6	.288	58.5	47.5	44.6			Calm . .	0	0	
	9	.272	57.5	44.3	42.6			Calm . .	0	0	
	Midn't.	28.266	54.7	41.5	39.2			N.N.W. .	1	0	Max. temp., 58°.0; min., 41°.5.

JULY, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Register. Black.	Register. Sky.	Direction.	Force.		
		Inches.	°	°	°	°	°				
3	3 A. M.	28.262	53.2	40.5	38.1			N.N.W. .	Air.	0	
	6	.250	57.0	39.5	37.4			Calm . .	0	C. K. 9 . .	Light.
	9	.262	57.6	42.9	40.3			Calm . .	0	C.K.&K.S. 9	
	Noon.	.252	57.8	46.5	42.8			N.W. . .	1	C.K.&K.S. 10	
	3 P. M.	.232	62.0	47.7	43.7			Eastward .	Air.	C.K.&K.S. 9	
	6	.232	57.9	44.3	42.8			E. . . .	1	K. & K. S. 9	
	9	.252	55.4	43.5	42.3			N.E. . .	1	K. & K. S. 8	
	Midn't	.250	55.3	43.7	42.7			N.E. . .	2	K. & K. S. 10	Max. temp., 47°.2; min., 39°.5.
4	3 A. M.	.254	58.4	41.3	39.5			N.E. . . .	1	K. & K. S. 7	
	6	.226	55.7	38.2	37.4			N.E. . . .	1	C.C.K.K.S.6	
	9	.254	58.0	48.5	46.2		44.0	N.N.W. .	1	C. 2 . . .	Smoky.
	Noon.	.232	56.5	53.5	46.8		51.5	N'd and W'd	1	C. 2 . . .	
	3 P. M.	.180	58.0	57.2	49.1		53.0	Calm . .	0	C. 1 . . .	
	6										
	9	.180	56.0	51.0	42.8			N.N.E. . .	1	0	
	Midn't.	.150	56.2	40.7	39.6			Calm . .	0	0	Max. temp., 57°.7; min., 37°.5.
5	3 A. M.	.118	57.0	38.5	37.2			N.N.W. .	1	0	
	6	.060	56.5	39.7	37.9		37.2	Calm . .	0	0	Smoky.
	9	.057	52.0	49.0	44.4		43.6	N. eastward	Air.	C. 1 . . .	
	Noon.	28.014	57.6	56.8	52.7		52.6	Calm . .	0	0	Do.
	3 P. M.	27.990	60.5	61.5	57.2		55.0	N.N.W. .	1	0	
	6	28.002	60.8	58.8	52.7			N.W. . .	1	0	
	9	27.980	58.8	50.1	47.2			N.N.W. .	1	0	
	Midn't.	.966	57.0	48.8	44.6			N.N.W. .	3	0	Max. temp., 62°.5; min., 38°.6.
6	3 A. M.	.969	59.5	46.2	43.0			N.N.W. .	2	0	
	6	27.983	53.6	44.2	41.0			Calm . .	0	C.C.K.C.S. 7	
	9	28.026	55.2	54.3	48.8		48.2	Calm . .	0	C. & C. K. 6	
	Noon.	.028	59.7	59.7	53.8		56.5	W.N.W. .	2	C. & C. K. 5	
	3 P. M.	.028	61.0	60.5	54.9		58.0	N.N.W. .	2	C. & C. K. 8	
	6	.070	59.2	54.0	50.9			Northward .	1	C. K. 2 . .	
	9	.100	63.2	47.8	43.2			Calm . .	0	Fog 10 . .	
	Midn't.	.034	56.0	45.0	41.7			Eastward .	3	Fog 10 . .	Very thick. Max. temp., 64°.7; min., 44°.2.
7	3 A. M.	.036	58.2	44.5	41.0			Eastward .	2	C. K. & S. 10	
	6	.028	56.3	43.7	39.6			Calm . .	0	Fog 10 . .	Late.
	9	.003	54.6	47.5	44.1			W.N.W. .	2	Fog 10 . .	
	Noon.	.047	58.5	52.0	46.8			S.W. . .	1	Fog 10 . .	
	3 P. M.	.067	61.4	58.0	46.0			S.S.W. . .	2	K. S. 10. .	
	6	.033	58.0	48.0	46.2			N.E. . . .	1	K. & K. S. 10	
	9	.070	58.2	47.0	45.7			N.E. . . .	2	K. & K. S. 10	
	Midn't.	.109	59.0	46.0	45.0			N.E. . . .	2	K. & K. S. 10	Max. temp., 50°.5; min., 44°.0.
8	3 A. M.	.097	60.7	46.3	45.3			N.E. . . .	3	K. & K. S. 10	
	6	.078	56.0	46.4	44.6			E.S.E . .	1	K. & C. K. 6	Clouds from northwest.
	9	.076	54.7	51.5	47.4			Westward .	2	K. & C. K. 7	
	Noon.	.064	59.2	60.0	53.9			S'd and W'd	1	K. & C. K. 8	
	3 P. M.	.049	59.9	57.8	52.7			Northward .	Air.	K. & C. K. 10	
	6	.134	61.0	57.4	51.9			S.S.W. . .	2	C. K. 10 .	
	9	.198	60.5	52.0	48.6			Calm . .	0	C. K. 10 .	
	Midn't.	.112	58.2	51.0	48.4			N'd and E'd	2	C. K. 10 .	Max. temp., 63°.2; min., 45°.5.
9	3 A. M.	.112	60.5	49.8	47.6			N'd and E'd	1	C. K. 10 .	
	6	.100	57.2	48.0	46.9			S.S.E. . .	1	C. K. 10 .	Late.
	9	.107	57.4	51.3	48.1			Northward .	Air.	C.K.&K.S. 10	
	Noon.	.104	60.0	59.2	52.7			Calm . .	0	C.S.&K.S. 10	
	3 P. M.	.084	61.4	59.8	53.8			N.N.W. .	1	C.S.&K.S. 10	
	6	.095	61.0	53.5	50.4			Eastward .	1	K. & K. S. 10	
	9	.096	60.8	50.8	48.4			N.W. . .	1	K. & K. S. 10	
	Midn't.	28.095	60.1	49.0	46.6			N.W. . .	1	K. & K. S. 10	Max. temp., 61°.3; min., 45°.9.

JULY, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Stand-ard.	Wet.	Register. Black.	Sky.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°				
10	3 A. M.	28.024	62.7	50.7	47.2			N. eastward	2	K. & K. S. 10	
	6	.089	58.8	47.4	44.1			S'd and E'd	1	C.K.&K.S.10	Clouds from northwest.
	9	.082	56.0	50.8	46.8			Calm . .	0	C. K. & S. 10	
	Noon.	.100	60.0	59.7	51.7			S'd and E'd	1	C. K. & S. 10	
	3 P. M.	.100	60.2	62.5	53.4			S'd and E'd	2	C. K. & S. 10	
	6	.120	60.0	54.0	50.4			Northward .	1	C. K. 8 . .	
	9	.100	60.7	51.5	49.1			Calm . .	0	C. K. 5 . .	
	Midn't.	.080	60.5	49.4	45.5			Calm . .	0	C. K. 8 . .	Max. temp., 63°.2; min., 48°.2.
11	3 A. M.	.046	61.0	47.0	43.7			Northward .	Air.	C. K. 4 . .	3 P. M., heavy belt of K. S. about half way down
	6	.046	60.0	44.6	41.6			Calm . .	0	C. K. 8 . .	the cordilleras to the eastward. Overhead the
	9	.074	57.8	49.9	47.4			S. westward.	1	C.K. & C.S.9	C. in two distinct strata, the lower moving from
	Noon.	.121	61.2	59.7	53.1			S. westward.	1	C. & C. S. 7	the S.E., the other from W.N.W.
	3 P. M.	.143	61.0	60.0	53.1			S. westward.	1	C. & C. S. 6	
	6	.146	60.4	54.0	49.7			E.N.E. . .	1	C. S. 2 . .	
	9	.115	58.0	49.5	45.5			Eastward .	1	C. S. 1 . .	
	Midn't.	.100	56.3	48.2	46.4			W.N.W. .	3	0	Max. temp., 61°.5; min., 44°.5.
*12	3 A. M.	.075	59.2	45.7	43.2			N.N.W. .	3	0	
	6	.028	57.8	45.5	42.8			N.W. . .	2	C.C.K.& S. 3	Clouds from northwest.
	9	.034	55.0	49.5	47.6			S'd and W'd	1	C. & C. K. 7	
	Noon.	28.028	57.0	54.7	52.7		54.5	Calm . .	0	C. & C. K. 8	Do do.
	3 P. M.	27.980	59.0	60.4	54.9			Calm . .	0	C. & C. K. 10	
	6	28.024	59.0	53.5	51.5			S.S.E. . .	2	C. K. & S. 10	
	9	.038	60.2	51.5	49.6			E.S.E. . .	2	C. 8 . . .	Light.
	Midn't.	.038	60.0	49.4	46.6			S.S.E. . .	3	K. S. 10 .	Max. temp., 63°.8; min., 45°.2.
†13	3 A. M.	.106	60.5	47.1	45.2			S.S.E. . .	5	K. S. 10 .	Heavy rain.
	6	.202	59.0	47.0	44.9			N.N.W. .	3	C. K. & S. 9.	Clouds from northwest.
	9	.232	58.4	49.6	47.2			N.W. . .	1	K. & C. K. 7	Do do.
	Noon.	.262	62.4	54.7	50.0			S. eastward.	1	K. 10 . .	Do do.
	3 P. M.	.210	62.6	59.0	51.1			S.W. . .	1	K. & C. K. 5	Do do.
	6	.225	60.8	53.7	48.6			E.S.E. . .	1	C. K. & S. 4	
	9	.217	64.0	51.0	47.4			N.E. . . .	1	K. & C. K. 10	
	Midn't.	.218	62.4	50.0	46.6			Westward .	1	K. & C. K. 10	Max. temp., 62°.0; min., 47°.8.
‡14	3 A. M.	.212	63.1	49.7	46.4			N.W. . .	3	K. & C. K. 10	
	6	.175	60.0	49.5	46.4			N.W. . .	3	K. & K. S. 10	Clouds from W. by N.
	9	.192	58.0	49.5	46.6			S.S.E. . .	2	K. & K. S. 10	Rain.
	Noon.	.170	59.0	53.5	51.3			Calm . .	0	K. & K S. 10	Sprinkling rain.
	3 P. M.	.112	60.0	53.7	49.8			S.S.E. . .	2	K. & K. S. 10	Rain.
	6	.128	60.5	52.8	49.1			Northward .	1	K. & K. S. 10	Slight rain.
	9	.114	60.2	51.4	48.6			Calm . .	0	K. & K. S. 10	
	Midn't.	.120	60.0	48.5	47.4			S.S.E. . .	2	K. S. 10 .	Max. temp., 57°.2; min., 48°.1. Heavy rain.
§15	3 A. M.	.086	61.5	49.8	47.6			Calm . .	0	S. & K. S. 10	
	6	.100	61.2	50.1	48.0			Calm . .	0	K. S. 10 .	Late.
	9	.140	60.8	52.7	51.3			Calm . .	0	Nimbus 10 .	Rain—late.
	Noon.	.134	63.0	56.0	53.5			Calm . .	0	K. & C. K. 10	
	3 P. M.	.119	62.5	58.0	53.4			S. eastward.	2	K. & C. K. 9&10	
	6	.132	61.5	53.7	51.1			S. eastward.	2	K. & C. K. 10	
	9	.150	61.4	51.7	48.6			S.S.E. . .	2	K. & K. S. 10	
	Midn't.	28.142	58.5	51.0	48.4			S.S.E. . .	Airs.	K. S. 10 .	Max. temp., 60°.7; min., 48°.8.

* 6 A. M., heavy belt of fog round the bases of the mountains to the westward. Minimum sky for night, 42°.3.

† At 2h. 45m. A. M., commenced raining heavily, with a strong southeasterly wind. 11h.5 A. M., slight rain for ten or fifteen minutes. Quantity of rain at noon, 1.570 in.

‡ 6 A. M., these observations late; clouds compact and in waves; snowing on the Andes. 7.30 A. M., commenced raining slightly. Rain during day, 0.650 in.

§ Noon. Quantity of rain, 1.530 in. 3 P. M., lower stratum of clouds moving from S.E.; upper from N.W.

JULY, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd	Standard.	Wet.	Dry.	Register.			Direction.	Force.		
							Sky.	Max.	Min.				
		Inches.	°	°	°	°	°	°	°				
*16	3 A. M.	28.122	61.8	50.0	47.6	48.6		50.5	51.0	E.N.E. . .	1	K. S. 10. .	
	6	.114	59.7	49.3	46.8	47.2		49.0	49.0	Calm . .	0	K. S. 10 .	Fog.
	9	.118	56.5	49.0	47.0	48.4		50.1	50.1	S.S.E. . .	1	K. S. 10 .	
	Noon.	.106	59.0	54.2	49.7	53.4		53.0	52.4	Calm . .	0	C. K. & S. 9	Clouds from S.W.
	3 P. M.	.052	61.0	57.0	50.2	52.9		59.2	58.7	N.N.W. .	1	C. K. & S. 4	
	6	.052	59.5	52.7	48.6	50.6		52.5	52.3	S. by W. .	2	C. K. & S. 7	
	9	.034	58.0	50.5	46.4	48.6		50.1	50.1	Calm . .	0	C. K. & S. 9	[48°.5.
	Midn't.	.040	58.0	49.5	45.1	47.4				S.S.E . .	3	C. K. & S. 10	Heavy rain. Max. temp., 61°.3; min.,
†17	3 A. M.	.014	60.2	48.8	44.9	47.0		48.0	48.0	S'd and E'd	2	C. K. & S. 10	Rain.
	6	.005	59.7	46.5	43.9	45.5		46.5	46.3	N.E. . . .	2	K. & C. K. 8	
	9	.016	56.0	48.5	46.6	47.2		49.2	49.0	Calm . .	0	K. & C. K. 8	
	Noon.	.073	59.3	50.6	47.0	48.8		50.2	50.8	Calm . .	0	K. & C. K. 10	Clouds from N.E.
	3 P. M.	.238	61.0	46.5	41.2	44.8		45.5	46.3	N.E. . . .	7	K. & C. K. 10	
	6	.348	61.5	46.0	41.2	43.7		45.0	46.0	N.E. . .	2	K. & N. 10 .	Rain.
	9	.391	58.3	42.6	39.8	40.8		42.0	43.2	N.E. . . .	2	K. & K. S. 10	
	Midn't.	.387	58.1	39.8	37.6	38.0		38.8	40.0	S.E. . . .	1	0	Max. temp., 61°.5; min., 39°.8.
18	3 A. M.	.364	61.0	38.2	35.8	36.3		37.0	39.0	N.W. . .	3	0	
	6	.340	57.2	36.7	35.4	35.6		35.4	37.0	N.W. . .	1	C. S. 3 . .	Heavy fog to westward.
	9	.340	52.0	38.2	35.6	36.0		38.0	39.2	S.S.W. . .	3	Fog 8 . .	
	Noon.	.338	56.0	48.0	44.1	46.3	45.0	51.0	52.7	Calm . .	0	C. & C. K. 9	Slight.
	3 P. M.	.300	59.0	51.7	46.6	50.2		52.7	53.2	Southerly .	1	C. & C. K. 10	
	6	.288	58.5	47.4	42.8	44.9		46.5	47.8	S.S.E. . .	1	C. & C. K. 9	
	9	.250	56.0	44.5	40.5	41.9		42.0	44.0	N'd and E'd	1	C. & C. K. 2	
	Midn't.	.314	53.0	43.0	40.0	41.2				Northward .	1	C. & C. K. 9	Max. temp., 53°.0; min., 36°.2.
19	3 A. M.	.210	58.0	41.5	38.6	39.8		40.8	41.7	N'd and E'd	2	C. K. & S. 10	
	6	.200	54.0	41.0	37.6	38.4		39.0	41.2	N.N.W. .	2	C. K. 6 . .	Late.
	9	.200	58.7	44.5	43.2	46.6		47.2	47.8	S.W. . .	1	K.C. & K.S. 4	
	Noon.	.182	55.4	56.5	48.1	53.8	49.7	54.3	54.5	S.W. . .	1	C. S. 3 . .	
	3 P. M.	.136	57.8	55.8	48.8	55.2		56.3	56.3	N.W. . .	1	C.C.S. & K. 8	
	6	.147	56.4	50.0	45.0	49.1		52.3	53.0	S.W. . .	2	C.C.S. & K. 8	
	9	.167	56.0	47.8	44.1	46.4		46.4	47.0	N.E. . . .	1	K.C.K. & S.10	Halo round the moon.
	Midn't.	.152	56.0	46.0	42.8	43.5		44.5	45.5	N.E. . . .	1	C. C. & K. S. 8	Max. temp., 58°.5; min., 36°.5.
20	3 A. M.	.159	57.3	45.6	43.5	43.9		45.0	46.0	S. eastward	2	K. & K. S. 10	Clouds from northward.
	6	.181	55.7	43.8	41.7	42.3		43.0	44.0	S. eastward	1	K. & N. 10	Rain.
	9	.212	55.0	45.2	41.2	43.7		44.3	45.0	S. eastward	1	K. & K. S. 10	Rain.
	Noon.	.236	56.5	46.0	43.0	44.8		46.8	47.6	S'd and E'd	2	K. & K. S. 9	
	3 P. M.	.250	58.5	47.2	43.4	46.3		46.2	47.5	Calm . .	0	K. & K. S. 9	Clouds from N.W.
	6	.288	59.0	45.0	41.2	41.9		44.0	44.9	S.S.W. . .	1	C. K. & S. 8	Do.
	9	.334	64.2	42.7	40.0	40.8		42.0	43.0	S.S.E. . .	1	C. K. & S. 9	
	Midn't.	.352	64.0	41.5	38.6	39.5		40.2	41.8	S.S.W. . .	1	C. K. 6 . .	Max. temp., 50°.2.; min., 41°.3.
‡21	3 A. M.	.340	63.0	41.0	38.2	39.3		39.7	41.2	Eastward .	Air.	C. K. & S. 10	
	6	.344	58.2	39.1	35.7	37.2		37.0	39.2	Calm . .	0	C. K. & S. 10	
	9	.355	55.8	44.5	41.9	42.6		44.7	45.8	Westward .	1	C. C. K. & S. 4	
	Noon.	.376	61.0	51.3	48.4	59.9		54.3	54.0	Calm . .	0	C. & K. S. 6	
	3 P. M.	.344	60.5	53.3	47.0	53.6	49.0	56.3	56.2	S.W. . .	1	K. C. K. & C. 4	
	6	.347	57.6	48.0	42.3	45.3		47.6	48.5	N.W. . .	1	K. & K. S. 1	
	9	.366	57.0	42.8	38.9	40.0		41.0	42.2	N.E. . . .	Air.	0	
	Midn't.	28.386	61.6	39.2	36.3	36.7		38.0	39.5	N.E. . . .	Air.	0	Max. temp., 58°.7; min., 36°.5.

* Commenced raining at 10 A. M. Quantity that fell before midnight 1.125 inch. Much snow on Andes.

† Noon. Quantity of rain 1.087 inch. Wind commenced blowing quite a gale from N.E. about 1 P. M., with occasional light rains that lasted for a few minutes. Some rain about ten minutes before 3 P. M. Shortly after 3 P. M. rain commenced again. Rain since noon 0.055 inch. Total for the day 1.142 inch.

‡ At 6 A. M. much snow on all the mountains. Noon, wet and dry and self-registering thermometers in the passage. Quantity of rain since midnight 0.380 inch.

JULY, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Register. Max.	Register. Min.	Direction.	Force.		
		Inches.	°	°	°	°	°	°	°				
*22	3 A. M.	28.360	59.8	36.8	34.1	34.5		35.3	37.2	S.E. . . .	1	0	
	6	.372	57.2	34.1	32.6	32.8	31.6	33.0	34.6	S.S.E. . .	1	0	
	9	.390	54.5	39.8	35.4	40.8	39.0	39.8	40.5	Northward .	1	0	
	Noon.	.384	60.2	49.1	44.6	46.6	45.5	48.0	48.3	Calm . .	0	0	
	3 P. M.	.336	62.0	52.8	45.9	51.3	52.2	52.1	52.1	N.N.W. .	1	0	
	6	.334	59.0	47.0	41.7	44.8		46.2	46.0	S'd and E'd	Airs.	0	
	9	.336	65.2	41.5	36.8	38.4		41.5	42.0	N'd and E'd	2	0	
	Midn't.	.344	66.2	37.6	35.2	34.2		36.4	37.2	Calm . .	0	0	Max. temp., 51°.2; min., 34°.3.
†23	3 A. M.	.307	67.0	35.1	32.3	33.5		34.0	34.6	Northward .	1	0	6 A. M., min. sky for night, 31°.5
	6	.292	62.7	32.0	30.6	32.1		32.4	33.4	Calm . .	0	0	
	9	.192	56.3	41.2	39.5	42.6	39.6	42.7	43.8	Calm . .	0	C. & C. S. 6	
	Noon.	.164	58.4	52.5	46.2	52.0	51.0	51.7	51.8	Eastward .	Air.	C. & K. S. 9	
	3 P. M.	.140	61.0	49.8	43.0	48.0		48.7	48.8	S.W. . .	1	K. & K. S. 10	
	6	.113	60.0	45.0	41.7	43.7		44.0	44.8	N.E. . .	2	K. & K. S. 8	
	9	.104	59.2	41 3	37.4	39.1		38.8	41.5	N.E. . .	1	C. & K. S. 3	[54°.5; min., 33°.0.
	Midn't.	.103	59.8	39.0	35.6	37.0		37.0	37.8	Calm . .	0	K. & C. K. 3	Halo round the moon. Max. temp.,
24	3 A. M.	.105	59.5	36.7	33.8	34.7		35.0	36.7	S.S.E. . .	2	C.K. & K S. 4	Halo round the moon.
	6	.126	54.5	36.3	34.7	36.0		34.8	36.4	N.W. . .	1	K. & C. K. 5	Heavy frost on the house-tops.
	9	.126	53.5	40.4	37.4	41.0	38.5	41.4	42.5	N.N.E'd .	1	C. K. 2 . .	
	Noon.	.118	53.7	50.5	45.0	50.4	46.0	51.7	51.8	Calm . .	0	C. 1 . . .	Smoky.
	3 P. M.	.124	57.0	53.8	46.1	51.5	50.2	54.5	54.2	Calm . .	0	C. 2 . . .	
	6	.164	57.6	48.0	41.5	44.4		46.2	47.1	S.S.E. . .	1	0	
	9	.158	59.0	42.0	37.4	38.9		40.0	41.5	Northward .	1	0	
	Midn't.	.178	65.1	38.6	34.5	37.0		37.6	38.6	Northward .	1	0	Max. temp., 54°.3; min., 35°.0.
25	3 A. M.	.150	63.0	36.5	33.8	34.7		35.2	37.0	Northward .	1	0	6 A. M., min. sky for night, 33°.0.
	6	.166	64.1	35.7	32.7	33.3		33.4	36.0	N. eastward	1	0	Faint halo round the moon.
	9	.193	60.8	42.0	39.3	42.1	41.4	42.7	44.0	S.E. . . .	1	0	
	Noon.	.221	58.4	51.7	44.6	50.2	48.6	51.4	51.3	S.W. . .	2	0	
	3 P. M.	.231	60.5	55.3	45.3	53.6	51.7	55.2	55.0	S.W. . .	1	0	
	6	.291	58.4	48.5	43.5	44.8		47.0	48.0	N.E. . .	2	C. K. & C.S. 1	
	9	.300	59.2	43.2	40.0	40.8		43.0	43.5	N.E. . .	1	0	
	Midn't.	.330	55.4	41.5	38.4	38.6		41.0	42.3	N.W. . .	1	C. & C. S. 2	Max. temp., 57°.5; min., 35°.0.
26	3 A. M.	.334	56.0	43.0	40.0	40.8		41.8	43.0	Northward .	1	K. & K. S. 10	At 0h. 53m. 40s. P. M. mean time Santiago, a momentary earthquake shock was felt, followed by a second, lasting from 12h. 53m. 55s. to 12h. 54m. 2s. Both apparently came from S.W., accompanied by the usual noise. Bar., 28.315; att. ther., 58°.0.
	6	.324	54.7	41.0	38.2	39.1		39.8	41.0	S. eastward	1	K. & K. S. C.5	
	9	.394	52.0	45.2	42.3	45 0	43.5	45.0	45.0	S.S.W. . .	1	C. 1 . . .	
	Noon.	.328	55.5	51.8	46.6	50.0	49.0	51.2	51.2	S.S.W. . .	2	C. 1 . . .	
	3 P. M.	.263	60.7	56.7	48.8	55.2	53.0	56.3	56.0	S.W. . .	2	C. 1 . . .	
	6	.274	59.0	51.2	46.2	50.9		50.7	50.2	Westward .	1	C. 2 . . .	
	9	.271	58.1	46.5	42.3	43.7		46.2	46.0	S.S.E. . .	1	C. K. 10 .	
	Midn't.	.268	56.0	44.2	40.5	41.7		44.0	44.2	Calm . .	0	C. K. 8 . .	Max. temp., 56°.2; min., 40°.1.
27	3 A. M.	.234	62.2	41.5	37.8	38.9		39.3	40.5	S.S.E. . .	2	C. 3 . . .	
	6	.210	57.0	39.4	35.2	36.1		38.7	39.2	S.S.E. . .	2	C. K. 5 . .	
	9	.206	54.0	45.0	43.0	46.2		46.0	47.0	S.E. . . .	1	C. K. & K. 7	
	Noon.	.160	58.5	57.2	50.4	55.4	53.8	56.8	56.5	S.W. . .	1	C. & C. K. 6	
	3 P. M.	.099	60.9	63.0	51.3	61.0		63.4	62.2	S.W. . .	1	C. C. K.& S. 8	
	6	.110	60.8	56.5	50.4	54.0		55.8	55.7	S.W. . .	1	K. & K. S. 10	
	9	.132	61.4	53.5	48.4	51.3		52.6	52.8	N.E. . .	3	K. & K. S. 9	
	Midn't.	28.138	63.0	51.0	46.8	49.1		50.7	51.0	N.N.W. .	4	K. & K. S. 10	Max. temp., 58°.7; min., 39°.0.

* At 2h. 23m. 30s. A. M., there was a quick, distinct, and heavy earthquake. After an interval of eight or ten seconds another followed, and two or three seconds later a third. No accompanying noise was perceived. The barometer was agitated, the mercury vibrating through about the tenth of an inch. E. R. S.

† At 11h. 46m. 17s. P. M. mean time Santiago, a slight earthquake, followed at 11h. 46m. 32s. by a rumbling noise and shake, which lasted ten seconds—that is, till 11h. 46m. 42s.

A. MACE.

Midnight, clouds moving from N.W.

JULY, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°	°	°				
*28	3 A. M.	28.134	64.4	49.2	45.0	46.8		48.6	49.0	N.E. . . .	3	K. & K. S. 9	
	6	.124	60.4	48.2	45.3	46.2		47.3	47.0	N.E. . . .	2	K. & K. S. 10	
	9	.160	58.8	49.0	46.1	49.4		48.8	48.8	N.N.E . .	1	K. & K. S. 10	Rain.
	Noon.	.134	60.4	53.0	49.1	52.9		52.7	52.5	N.N.W. .	2	K. & K. S.10	Clouds from N.N.W.
	3 P. M.	.104	60.4	53.0	48.8	51.3		52.9	52.9	E.S.E. . .	1	K. & K S.10	Do do.
	6	.134	61.0	51.7	47.6	49.7		51.0	51.2	Calm . .	0	K. & K. S. 10	
	9	.142	59.8	50.6	47.0	48.8		49.2	49.6	E.N.E. . .	1	K. & K. S. 10	
	Midn't.	.148	62.0	50.0	46.8	48.4		49.2	49.6	Calm . .	0	K. & K. S. 10	Max. temp., 53°.2; min., 47°.4.
†29	3 A. M.	.174	63.0	45.2	45.2	47.6		45.0	45.4	S.S.E. . .	5	K. & K. S.10	Heavy rain.
	6	.242	60.5	42.5	38.4	39.4		41.0	42.8	N.E. . . .	2	K. 10 . .	Rain.
	9	.324	55.3	41.5	38.2	39.1		41.0	41.2	N.N.E . .	2	K. & K. S. 10	
	Noon.	.367	58.5	45.7	40.3	43.2		47.0	47.8	Eastward .	1	K. & K. S. 9.	
	3 P. M.	.366	59.5	48.0	42.6	46.2	45.2	48.7	50.3	N.N.E . .	4	K. & C. K. 4	
	6	.416	60.6	43.0	38.4	41.2		42.3	43.5	N.W. . .	1	K. & K. S. 3	
	9	.430	58.8	40.0	36.3	37.6		38.2	40.0	Southward .	Air.	0	
	Midn't.	.426	61.4	38.5	35.4	36.0		37.0	38.8	E. by S. . .	1	K.,C.K.& C.3	Max. temp., 50°.2; min., 38°.5.
30	3 A. M.	.400	62.6	36.5	33.5	34.0		34.5	36.4	N.E. . . .	1	K. & C. K. 2	
	6	.374	56.9	31.9	31.8	32.2		32.4	34.5	Calm . .	0	0	
	9	.390	56.5	38.5	36.5	37.8		39.0	40.2	Calm . .	0	C. 1 . . .	Smoky.
	Noon.	.350	56.2	47.6	42.3	45.6		48.9	49.1	N.W. . .	1	C. 2 . . .	
	3 P. M.	.292	57.2	50.2	45.9	48.1	45.5	51.8	51.8	Southward .	1	C. 3 . . .	
	6	.300	57.5	45 6	41.0	43.2		46.0	46.2	N.N.E. . .	1	C. 4 . . .	
	9	• .258	57.5	42.4	38.2	40.9		43.0	43.5	N.N.E. . .	1	C. K. 10 .	[ening appearance.
	Mid'nt.	.230	57.0	41.6	37.5	40.0		42.2	43.4	Calm . .	0	K. S. 10 .	Max. tem., 53°.1; min., 34°.0. Threat-
31	3 A. M.	.198	58.0	41.2	37.2	39.6		41.0	42.4	Calm . .	0	C. K. 10 .	
	6	.150	56.2	39.7	36.4	37.1		40.0	41.1	Calm . .	0	C. K. 9 . .	
	9	.133	55.0	45.2	43.0	45.3		45.5	46.5	Calm . .	0	C. & C. S. 9	Smoky to southward.
	Noon.	.124	58.7	57.3	50.6	57.9		58.4	58.8	Calm . .	0	C. & C. S. 9	Smoky.
	3 P. M.	.066	61.6	63.0	53.2	61.0		63.2	63.4	Calm . .	0	C.,C.K.&C.S.6	
	6	.054	61.5	56.5	50.9	53.8		55.2	54.7	Calm . .	0	C. & C.K S. 7	
	9	28.032	60.0	50.0	45.5	47.0		49.6	49.8	Calm . .	0	0	
	Midn't.	27.972	57.6	47.1	43.0	45.5		47.4	47.8	Calm . .	0	0	Max. temp., 63°.5; min., 34°.2.

* Between 7 and 8 P. M. a heavy shower fell of a few moments duration. From 9 P. M. to midnight heavy rain fell at intervals. Quantity of rain at noon, 2.005 *in.*

† Rain commenced again at 12¼ o'clock, but continued only a short time; and at 1*h.* 30*m.* P. M. sky began to clear off.

GENERAL REMARKS.

July 16.—3 A. M., commenced noting the maximum and minimum thermometers, and also the dry thermometer attached to the wet bulb, every observation hour, in order to obtain the ranges of all.

July 16.—9 A. M., wet-bulb and attached dry and self-registers observed inside the open passage on account of the sun.

AUGUST, 1850.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Max.	Min.	Direction.	Force.		
		Inches.	°	°	°	°	°	°	°				
1	3 A. M.	27.930	61.0	45.1	41.2	43.7		45.5	46.2	Northward .	Air.	C. K. 9 . .	8 P. M., sky to N.N.E. very red, re-
	6	.893	58.5	44.0	40.3	43.0		44.2	45.0	Calm .	0	C.S.&C.K.S.10	sembling the aurora borealis. At 8h.
	9	.924	57.5	50.2	47.6	50.4		52.2	52.5	Calm . .	0	C. 9 . . .	Very light C. [35m. P. M. there
	Noon.	.916	61.2	63.7	54.9	63.5	55.8	66.0	66.0	W. by S. .	1	C. 8 . . .	Light C.; smoky. [was a sl't earth-
	3 P. M.	27.960	61.2	61.5	53.1	58.5	57.0	62.0	62.0	S.S.W. . .	5	C. 4 . . .	Very light C. [quake.
	6	28.010	59.8	52.0	48.6	50.9		51.0	51.5	Southward .	3	C. K. 2 . .	
	9	.068	60.5	50.7	47.0	49.8		50.8	51.2	S'd and W'd	2	C. K. 10 . .	
	Midn't.	.000	59.2	48 7	46.2	48.1		47.8	48.0	Calm . .	0	0	Max. temp., 67°.2; min., 44°.0.
2	3 A. M.	.036	62.5	46.5	42.7	43.9		45.7	46.2	S.S.E. . .	2	C. K. 10 .	
	6	.088	58.4	45.2	40.9	42.5		44.8	45.1	S'd and E'd	1	C. K. 10 .	
	9	.124	58.4	50.1	47.6	49.7		51.0	51.4	E.S.E. . .	2	K. & K.S. 8.	
	Noon.	.130	61 6	58.7	51.3	55.4		60.2	60.4	Northward .	1	K. & C. K. 7	
	3 P. M.	.136	61.5	58.4	51.1	56.3		57.5	57 5	S. westward	1	K. & C. K.10	Clouds from N.N.W.
	6	.186	61.3	52.5	48.4	50.6		53.2	53.5	S.S.E. . .	1	K. 9 . . .	
	9	.242	60.6	50.5	47.2	49.5		51.3	51.6	Calm . .	0	K. & K. S. 10	At 9h. 40m. rain. [slight.
	Midn't.	.296	61.8	49.7	46.4	47.6		50.2	50.4	N. westward	2	N. 4 . . .	Max. temp., 61°.6; min., 46°.0. Rain,
3	3 A. M.	.306	63.4	49.0	46 8	48.6		50.0	50.7	N.E. . . .	1	K. & K. S. 8	
	6	.334	59.6	49.6	47.2	48.4		49.7	50.4	N.W. . .	Air.	K. & K. S. 10	Rain.
	9	.340	58.8	51.0	48.1	50.4		50.8	50.8	Calm . .	0	K. S. 10 .	
	Noon.	.332	59.7	53.0	50.2	51.5		52.9	52.9	Calm . .	0	K. S. 10 .	
	3 P. M.	.334	61.0	57.0	52.2	54.3		55.7	56.0	Calm . .	0	K. S. 10. .	
	6	.332	60.9	53.7	50.1	51.7		52.2	52.8	N. by W. .	1	C. K. 10 . .	
	9	.324	61.0	51.3	48.6	50.1		51.7	51.9	Calm . .	0	C. K. 10 . .	
	Midn't.	.296	60.0	49.5	47.4	48.6		50 7	50.0	Calm . .	0	K. S. 10 .	
4	3 A. M.	.234	56.0	48.0	46.2	47.1		46.2	47.0	Northward .	1	C. K. 10 .	
	6	.234	57.0	47.5	45.9	46.3		45.8	46.6	Calm . .	0	C. K. 10 .	
	9	.232	56.0	50.5	49.1	49.7		50.7	51.0	S. eastward.	Air.	K. & K.S.C.8	
	Noon.	.220	59.5	58.3	56.5	52.9		57.4	57.5	Calm . .	0	K. & C. K. 8	
	3 P. M.	.180	62.6	63.0	52.5	60.1		61.7	61.7	Calm . .	0	C. & C. S. 7	
	6	.172	62.0	58.7	53.4	56.1		58.6	58.7	S.W. . .	1	K.,C.K.&C.7	
	9	.168	60.0	53.3	49.5	51.3		54.7	55.0	N.E. . . .	Air.	C. & C. K. 7	
	Midn't.	.138	58.6	51.9	49.1	50.4		52.7	53.0	N.E. . . .	Air.	C. & C. K. 5	Max. temp., 62°.0; min., 48°.5.
5	3 A. M.	.110	61.5	47.4	43.7	45.0		48.6	49.2	S.E. . . .	2	0	
	6	.097	57 4	45.5	44.1	44.8		47.0	47.6	Southward .	1	C. & C. S. 8	
	9	.097	57.1	51.3	50.0	51.1		52.0	52.0	Calm . .	0	C. & C. K. 7	
	Noon.	.078	61.0	62.0	55.6	59.9		60.2	61.0	S'd and W'd	1	C. 3 . . .	
	3 P. M.	.020	64.5	67.0	58.5	64.9	63.0	65.0	65.2	S. by E. .	1	C. S. 5 . .	
	6	.048	63.0	59.5	53.6	57.2		59.1	60.0	S.E. . . .	1	C. S. 3 . .	
	9	.130	62.5	51.2	49.2	50.6		51.0	51.9	Southward .	4	C. K. 4 . .	
	Midn't.	.136	60.0	50.5	48 1	49.5		51.5	51.5	E.S.E. . .	2	C. K. 4 . .	Max. temp., 65°.2; min., 46°.5.
6	3 A. M.	.136	61.4	49.5	47.0	48.3		50.0	50.5	Southward .	1	C. K. 10 .	Completely clouded over.
	6	.132	58.0	49.0	46.4	48.0		49.2	49.8	Calm . .	0	C. K. & S. 10	
	9	.138	58.2	51.1	48.6	50.2		51.3	51.4	W. by S. .	1	K.C.K. & fog 8	
	Noon.	.136	58.9	56.5	50.4	54.9		55.5	55.6	N.E. . . .	2	C ,C.S.&C.K.7	Clouds from N.N.W.
	3 P. M.	.096	61.0	62.0	52.7	59.2		60.7	60.5	W. by S. .	2	K. & C. K. 6	
	6	.124	60.6	55.0	49.3	52.7		55.0	55.2	E.N.E. . .	1	K. & C. K. 5	
	9	.167	58.6	50.7	46.6	49.1		51.8	52.0	N.E. . . .	1	K. & C. K. 4	
	Midn't.	.166	58.5	49.0	45.3	47.0		50.5	50.8	E.S.E. . .	1	K. & C. K. 4	Max. temp., 61°.2; min., 49°.0.
7	3 A. M.	.153	61.4	47.0	44.1	45.7		47.8	49.7	N.E. . . .	1	K. & C. K. 7	Rain during the day 0.530 in.
	6	.158	59.6	48.5	46.2	47.2		49.2	49.6	Calm . .	0	N. 10 . .	Rain—light.
	9	.176	59 0	51.5	47.4	48.9		51.2	51.2	Calm . .	0	K. & C. K.10	Do.
	Noon.	.176	59.8	53.2	49.1	50.9		52.5	52.5	Calm . .	0	K. & C. K.10	Rain.
	3 P. M.	.176	62.1	50.0	47.2	49.1		50.5	50.5	S.S.E. . .	2	K. & C. K.10	
	6	.200	64.0	48.5	46.2	48.6		49.0	49.0	S.S.E. . .	2	K. & C. K. 10	
	9	.232	62.0	46.5	44.1	45.3		47.0	47.0	Southward .	2	K. & C. K. 10	
	Midn't.	28.214	58.2	45.4	43.2	44.4		46.0	46.2	Southward .	1	K. & C.K. 10	Max. temp., 54°.1; min., 46°.0.

AUGUST, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Max.	Min.	Direction.	Force.		
		Inches.	°	°	°	°	°	°	°				
8	3 A. M.	28.190	61.0	45.2	43.0	44.2		45.9	46.2	Eastward .	2	K. & C. K. 10	Quantity of rain during day 0.290 in.
	6	.184	58.5	44.5	42.8	43.6		45.0	45.0	S.S.E. . .	2	K. & C. K. 10	
	9	.202	56.8	45.9	43.5	44.8		45.7	46.2	S.S.E. . .	1	K. & C. K. 10	
	Noon.	.199	55.8	49.0	45.3	48.1		48.5	48.7	E.S.E. . .	2	K. & C. K. 6	
	3 P. M.	.165	59.5	52.0	44.8	49.3		51.5	51.8	E.N.E. . .	2	K. & C. K. 5	
	6	.203	59.7	50.0	45.5	48.6		50.2	50.5	Calm . .	0	N. 10 . .	Rain.
	9	.222	58.7	46.5	43.7	45.5		46.8	47.3	Calm . .	0	K. & C. K. 10	
	Midn't.	.225	57.2	45.8	41.9	44.1		46.0	46.4	E.N.E. . .	3	K. & C. K. 10	Max. temp., 53°.0; min., 44°.7.
9	3 A. M.	.256	61.8	45.0	42.3	43.5		43.8	45.0	S. westward	3	N. 10 . .	Raining hard. Rain during day 1.330 in.
	6	.290	52.3	39.6	36.5	37.4		39.3	39 5	S.E. by E. .	2	N. 10 . .	Do.
	9	.350	55.2	41.5	38.6	40.2		41.2	41.6	S.S.E. . .	1	N. 10 . .	Raining slightly.
	Noon.	.394	58.2	47.5	43.2	46.0		46.2	46.2	S.S.E. . .	1	N. 10 . .	
	3 P. M.	.394	60.4	51.5	45.5	48.7		50.0	50.0	Southerly .	1	C. K. & S. 7	
	6	.440	55.3	46.0	42.3	45.1		45.8	45.8	Southward .	1	C. & C. K. 10	
	9	.462	58.0	44.8	41.0	43.2		45.0	45.0	Southward .	1	C. K. & S. 7	
	Midn't.	.424	54.2	43.6	39.3	42.8		44.2	44.2	Northward .	1	C. K. & S. 8	Max. temp., 53°.2; min., 39°.0.
10	3 A. M.	.390	52.5	42.6	38.5	41.9		43.5	43.5	Calm . .	0	C. K. 10 .	Rain during day 0.195 in.
	6	.350	51.7	41.2	38.1	41.0		41.0	41.1	S.E. . . .	3	C. K. 10 .	
	9	.401	53.0	43.3	41.0	43.0		43.4	44 4	Eastward .	1	K. & C. K. 10	
	Noon.	.450	54.2	44.2	41.5	43.0		43.6	44.5	S. by E. .	2	N. 10 . .	Rain.
	3 P. M.	.437	56.7	48.3	43.9	46.6		48.5	48.7	N.W. . .	2	K. & C. K. 7	Clouds from N.W.
	6	.419	56.2	44.8	41.2	43.2		45.2	45.8	S. by E. .	1	0	
	9	.422	52.8	40.3	38.0	39.5		40.0	41.4	N.W. by W.	1	0	
	Midn't.	.409	55.4	37.8	36.5	37.5		38.0	39.2	N.E. . . .	2	0	Max. temp., 50°.4; min., 39°.0.
11	3 A. M.	.367	56.2	35.7	34.1	35.6		36.2	37.8	N.E. . . .	3	0	
	6	.340	53.1	32.2	33.0	33.8		34.5	36.5	Calm . .	0	0	Heavy frost.
	9	.296	52.2	40.0	39.5	40.3	43.1	39.2	40.5	Northward .	1	0	Beautifully clear.
	Noon.	.260	52.2	50.0	44.8	49.1		49.1	49.0	N.W. . .	1	0	
	3 P. M.	.180	55.4	57.5	48.4	54.0	53.0	55.0	55.3	Calm . .	0	C. 1 . . .	
	6	.172	55.0	51.0	45.7	48.6		50.8	50.8	Calm . .	0	0	
	9	.164	54.2	45.0	41.2	43.2		46.0	46 0	Northward .	1	0	
	Midn't.	.146	53 0	40.5	38.2	39.5		43.0	43.0	Northward .	1	0	Max. temp., 51°.2; min., 36°.0.
12	3 A. M.	.116	57.2	38.0	35.7	37.7		39.2	40.0	S'd and E'd	1	0	6 A. M., min. sky for night, 34°.6.
	6	.126	58.0	36.0	35.0	36.3		38.0	39.1	Calm . .	0	0	
	9	.144	53.7	45.3	44.4	46.4	45.5	45.0	46.0	W. by N. .	1	C. & C. S. 2	
	Noon.	.164	54.6	55.2	49.7	52.9	51.7	53.2	53.3	S.W. . .	1	C. & C. S. 3	
	3 P. M.	.179	57.0	60.0	50.2	56.9		58.2	58.2	S.W. . .	1	C. & C. S. 7	
	6	.222	55.8	52.0	47.0	50.0		52.5	52.7	S.W. . .	1	0	Slight C to the westward.
	9	.234	54.6	46.5	43.7	45.3		47.7	47.3	N.E. . . .	1	C. 1 . . .	
	Midn't.	.230	52.8	43.3	40.3	42.1		44.5	45.2	N.E. . . .	2	0	Max. temp., 58°.8; min., 36°.4.
13	3 A. M.	.226	56.6	40.5	38.4	40.0		41.5	42.3	W.N.W. .	3	0	6 A. M., min. sky for night, 36°.0.
	6	.242	53.6	38.5	36.5	37.8		38.2	39.6	N.E. . . .	1	0	
	9	.250	53.0	45.0	43.7	44.5	45.0	44.8	45.0	Southward .	1	0	Smoky.
	Noon.	.240	54.2	54.1	48 6	52.2	51.2	52.2	52.6	Calm . .	0	0	Do.
	3 P. M.	.234	57.0	59.0	50.2	55.9	55.2	57.0	57.0	S'd and W'd	3	C. 1 . . .	Over Andes.
	6	.266	56.2	50.0	43.7	48.0		50.5	50.5	S'd and E'd	1	0	
	9	.280	54.3	44.9	41.2	44.6		46.5	46.5	Northward .	1	0	
	Midn't.	.272	54.0	40.0	38.4	40.0		44.0	44.0	S'd and W'd	2	0	Max. temp., 57°.2; min., 38°.8.
14	3 A. M.	.262	59.0	39.1	37.0	38.6		40.0	41.0	Southerly .	1	0	6 A. M., min. sky for night, 34.°0.
	6	.266	55.2	35.8	34.0	35.4	35.5	36.5	36.5	Calm . .	0	0	
	9	.273	55.0	45.5	42.3	44.6	43.5	44.3	45.2	N.W. . .	1	0	Very smoky to westward.
	Noon.	.244	56.4	56 3	49.3	54.0	53.0	53.7	51.0	S.W. . .	Air.	0	Smoky.
	3 P. M.	.208	59.7	62.0	50.4	58.3	56 2	59.5	59.4	S.W. . .	Air.	0	Do.
	6	.228	59.0	55.4	48.0	52.0		55.0	55.0	Calm . .	0	0	
	9	.254	57.6	47.6	43.2	45.9		49.2	49.6	Calm . .	0	0	
	Midn't.	28.259	59.0	43.2	38.9	41.9		45.2	45.8	Calm . .	0	C. & C. S. 1	Max. temp , 59°.5; min., 38°.6.

AUGUST, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Max.	Min.	Direction.	Force.		
		Inches.	°	°	°	°	°	°	°				
15	3 A. M.	28.203	60.3	40.5	37.1	39.1		42.4	43.5	N.W. . .	1	0	6 A. M., min. sky for night, 25°.0.
	6	.160	50.7	37.2	35.1	36.7		39.4	40.8	Calm . .	0	C. 4 . . .	
	9	.170	53.5	46.2	43.2	46.0	46.4	46.0	46.5	N.W. . .	1	C. 3 . . .	
	Noon.	.128	56.5	59.0	49.1	57.6	55.0	57.5	58.0	Calm . .	0	C. 5 . . .	
	3 P. M.	.090	58.5	64.5	53.1	61.2		61.6	62.5	Calm . .	0	C. S. 10 . .	
	6	.090	57.6	57.5	49.2	55.4		56.8	57.2	S.S.E. . .	1	C. S. 6 . .	Light.
	9	.076	58.2	50.5	44.6	49.3		51 2	51.5	Northward .	1	C. S. 8 . .	A halo around the moon.
	Midn't.	.036	57.5	47.5	41.2	47.2		49.0	49.0	S.S.E. . .	2	C. S. 4 . .	Light. Max. temp., 62°.2; min., 40°.1.
16	3 A. M.	.020	58.0	45.2	38.9	44.6		48.1	48.1	Calm . .	0	C. S. 6 . .	
	6	.020	56.0	43.2	36.2	40.5		44.3	44.6	Calm . .	0	C. S. 8 . .	
	9	.033	54.7	56.6	46.2	52.0		53.8	54.0	Southward .	Air.	C. S.& K. S. 9	
	Noon.	.038	56.0	60.5	50.0	59.0		59.0	58.6	S.W. . .	1	C. S.& K. S. 7	
	3 P. M.	.021	57.8	60.7	50.9	57.6		59.8	59.6	S.W. . .	1	C. S.& K. S. 9	
	6	.014	57.5	52.0	46.8	49.1		52.3	52.5	W. by N. .	2	C. & C. S. 6	Halo around the moon.
	9	.039	57.3	48.3	44.8	46.2		48.7	49.0	Eastward .	3	K. & K. S. 10	Wind unsteady. [min., 49°.0.
	Midn't.	.047	57.0	49.0	45.9	47.6		49.2	49.5	Calm . .	0	K. & K. S. 10	Do. Max. temp., 60°.4;
17	3 A. M.	.068	58.6	48.5	45 9	46.8		48.5	49.0	Southward .	3	K. & K. S. 10	
	6	.120	57.6	47.4	44.6	45.7		47.4	47.7	S.W. . .	2	N. 10 . .	Very slight rain or drizzle.
	9	.148	56.7	48.7	46.4	47.6		48.8	49.0	S.S.E. . .	1	N. 10 . .	Drizzling rain.
	Noon.	.148	59.0	53.7	51.3	52.7		52.2	52.2	E.N.E. . .	1	N. 10 . .	
	3 P. M.	.104	61.2	56.5	52.1	53.8		54.5	54.5	N'd and E'd	1	C. & C. K. 8	
	6	.094	61.0	52.4	47.2	48.6		52.5	52.5	S. by W. .	1	C. K. 9 . .	
	9	.102	61.0	48.8	45.4	47.7		47.9	48.4	Calm . .	0	C. K. 9 . .	
	Midn't.	.108	64.0	47.5	44.1	45.7		47.1	47.3	Calm . .	0	C. K. 9 . .	Max. temp., 60°.1; min., 49°.7.
18	3 A. M.	.164	66.0	47.0	44.0	45.5		47.0	47.2	Calm . .	0	N. 10 . .	Slight rain.
	6	.164	62.5	46.8	43.7	45.2		47.0	47.5	Southerly .	1	C. K. 8 . .	
	9	.188	60.5	50.5	49.3	51.3		49.5	50.0	Calm . .	0	K. & C. K. 8	
	Noon.	.188	60.7	60.4	51.5	56.7		57.6	57.6	Calm . .	0	K. & C. K. 6	
	3 P. M.	.162	61.4	60.9	52.5	58.3		59.3	59.4	S.W. . .	2	K. & C. K. 8	Clouds from N.W.
	6	.216	61.4	54.3	49.3	52.9		54.2	54.3	S.W. . .	2	N. 10 . .	Slight rain; commenced about 4 P. M.
	9	.239	63.3	52.0	48.4	50.2		52.4	52.5	N.E. . .	1	C & C. K. 7	Clouds from E.N.E. [ring day 0.450 in.
	Midn't.	.244	63.2	49.1	46.2	47.2		50.0	50.3	N.E. . . .	2	C. & C. K. 8	Max. temp.,59°.6; min., 47°.6. Rain du-
19	3 A. M.	.232	61.3	48.2	44.8	45.9		48.5	49.0	N. westward	1	K. & K. S. 7	
	6	.236	59.4	46.6	43.9	45.3		47.2	47.6	S.E. . . .	1	C. & C. K. 6	Clouds from N.E.
	9	.272	59.5	50.2	47.4	49.1		49.6	49.9	Southward .	1	C. & C. K. 8	
	Noon.	.286	61.2	58 5	51.5	55.6		56.2	56.5	Calm . .	0	C. & C. K. 9	Clouds from southward and eastward.
	3 P. M.	.250	62.1	61.5	54.2	58.1		58.5	59.0	Calm . .	0	C. & C. K. 8	Do. do.
	6	.270	60.5	57.5	51.3	54.0		57.0	57.2	S.S.W. . .	2	C. K. & S. 6	
	9	.316	64.0	51.5	48.1	50.0		52.5	53.0	S.S.W. . .	1	C. K. & S. 2	Over Andes.
	Midn't.	.330	62.5	51.1	47.0	49.5		52.0	52.0	S.S.E. . .	1	C. K. & S. 10	Max. temp., 60°.2; min., 46°.7.
20	3 A. M.	.340	64 2	50.3	46.8	49.1		51.2	51.4	Calm . .	0	C. K. & S. 10	
	6	.326	60.5	47.0	44.3	46.4		48.0	48.2	Calm . .	0	K. S. 5 . .	
	9	.327	60.2	53.5	50.6	52.2		52.6	52.6	N.W. . .	1	K. & C. K. 3	
	Noon.	.300	60.7	59.4	52.9	57.9		58.2	58.0	Calm . .	0	K. & C. K. 3	K. heavy on Andes.
	2 P. M.	.265	62.2	62.9	52.9	59.9		61.6	61.5	W. . . .	1	K. & C. K. 3	Do. do.
	6	.277	61.5	58.0	50.9	55.9		58.2	58.0	N.W. . .	1	C. S. 1 . .	
	9	.307	60.3	53.2	48.8	51.3		54.0	53.8	N.E. . . .	1	0	
	Midn't.	.312	60.5	49.5	46.4	48.1		50.7	50.7	W.N.W. .	2	0	Max. temp., 62°.2; min., 48°.5.
21	3 A. M.	.291	60.4	46.0	43.7	45.3		48.5	49.0	N.W. . .	1	0	6 A. M., min. sky for night, 42°.2. Halo
	6	.286	58.5	43.4	42.8	43.9	43.2	45.7	46.5	N.W. . .	1	C. & C. S. 2	[around the moon.
	9	.292	56.5	53.5	50.4	52.7		52.7	52.9	Calm . .	0	C. & C. S. 8	
	Noon.	.268	58.2	60.0	52.7	56.7		57.8	58.0	Calm . .	0	C. & C. S. 10	
	3 P. M.	.246	60.5	60.0	53.1	57.5		59.4	59.4	S. . . .	3	C. K. 9 .	
	6	.282	60.5	54.0	50.0	52.2		54.0	54.2	S.S.E. . .	2	K. S. 10 . .	
	9	.276	62.0	50.0	47.8	50.0		50.1	50.3	Calm . . .	0	K. S. 10 . .	[to N. and E.
	Midn't.	28.312	62.5	48.6	46 1	48.2		48.9	48.9	S.E. . . .	4	K. S. 10 .	Max. temp., 59°.6; min., 45°.2. Fog

AUGUST, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Max.	Min.	Direction.	Force.		
		Inches.	°	°	°	°	°	°	°				
22	3 A. M.	28.290	63.0	48.8	46.2	48.1		49.0	49.2	E.S.E. . .	2	K. S. 10 . .	Fog. 6 A. M., min. sky for night, 44.°2.
	6	.308	61.2	47.5	45.9	46.6		48.2	48.4	Calm . .	0	K. S. 5 . .	
	9	.325	60.0	52.3	50.0	51.5	51.0	52.0	52.2	N.E . . .	1	K. & C. K. 3	
	Noon.	.296	60.4	59.4	54.3	57.2		58.2	58.0	S.W. . .	1	K. & C. K. 6	
	3 P. M.	.275	61.2	62.2	54.5	58.7		60.8	60.8	Westward .	1	K. S. 10 .	
	6	.266	61.6	58.5	53.4	56.3		58.5	58.4	N.W. . .	1	K. & K. S. 10	
	9	.284	62.4	55.3	51.3	53.5		56.0	55.8	Eastward .	Air.	C.K. & K.S. 4	Halo around the moon.
	Midn't.	.250	59.6	57.5	49.3	51.3		58.5	58.7	N.N.W. .	1	K. & C. K. 7	Max. temp., 61°.4; min., 47°.5.
23	3 A. M.	.202	59.7	51.5	47.6	49.1		52.3	52.0	S. by E. . .	1	K. & C. K. 4	6 A. M., min. sky for night, 44°.8.
	6	.172	55.7	48.0	46.8	48.0	46.0	49.2	48.8	N.W. . .	3	C. & C. S. 2	Late.
	9	.188	57.4	54.5	51.3	54.6	54.0	54.8	54.8	S.S.E. . .	1	C. 1 . . .	Smoky.
	Noon.	.164	61.0	65.7	54.9	61.7	61.7	64.5	64.5	S.S.E. . .	1	0	Do.
	3 P. M.	.116	64 9	70.8	58.1	67.1	68.0	69.0	69.0	Calm . .	0	0	Very slight C. to southward.
	6	.096	64.5	64.5	55.9	62.0		64.3	64.8	Southward .	1	0	
	9	.096	63.1	57.5	52.9	54.0		58.2	59.0	Calm . .	0	0	
	Midn't.	.110	63.2	53.2	49.3	50.9		54.2	55.0	Calm . .	0	0	Max. temp., 70°.0; min., 49°.2.
24	3 A. M.	.110	63.0	50.2	47.2	48.6		51.5	52.0	Calm . .	0	0	
	6	.136	61.0	46.5	43.7	45.2		47.0	47.2	S. by E. . .	1	Fog 10 . .	Late.
	9	.167	61.4	48.3	46.2	47.0		48.5	48.5	Southward .	1	Fog 10 . .	
	Noon.	.178	62.2	52.8	49.3	50.4		51.7	51.8	S.W. . .	1	Fog 10 . .	
	3 P. M.	.174	62.3	55.5	50.9	52.7		54.2	54.0	S.W. . .	1	Fog 10 . .	
	6	.186	60.7	54.0	50.4	52.2		54.0	54.0	S.W. . .	1	Fog 10 . .	
	9	.215	62.8	51.0	48.4	50.0		51.0	51.2	S.S.W. . .	2	Fog 10 . .	
	Midn't.	.192	56.0	51.1	48.6	49.7		51.0	51.5	Calm . .	0	Fog 10 . .	Max. temp., 55°.5; min., 46°.0.
25	3 A. M.	.175	59.5	50.5	47.6	49.1		51.2	51.2	E.N.E. . .	1	Fog 10 . .	At 2h. 13m. P. M., a slight earthquake.
	6	.184	58.0	50.5	47.6	49.1		50.8	51.2	E.N.E. . .	1	Fog 10 . .	
	9	.206	57.5	51.0	48.6	50.4		51.2	51.5	E.N.E. . .	1	Fog 10 . .	
	Noon.	.188	62.0	60.5	54.7	56.9		57.2	58.0	Calm . .	0	0	
	3 P. M.	.154	64.0	64.5	56.5	61.7		63.2	63.2	Calm . .	0	0	
	6	.154	63.0	61.5	55.2	58.5		61.0	61.5	S. by E. . .	1	0	
	9	.162	64.0	55.2	50.6	53.1		55.2	55.7	Calm . .	0	0	
	Midn't.	.120	61.0	51.0	47.6	50.1		51.8	52.0	Calm . .	0	0	Max. temp., 55°.6; min., 48°.4.
26	3 A. M.	.086	62.0	47.5	45.7	46.6		49.0	49.0	S.S.E . .	1	C.K. 3 . .	
	6	.086	60.0	46.1	44.0	45.2	43.2	47.6	47.6	Calm . .	0	C. 1 . . .	
	9	.110	59.5	54.7	52.7	55.4	53.6	54.2	54.3	Calm . .	0	C. 1 . . .	
	Noon.	.100	61.4	67.0	58.1	64.9	61.7	65.0	64.6	Eastward .	1	0	Very slight C. K. over the mountains.
	3 P. M.	.080	59.0	71.8	57.9	69.5	66 8	70.0	69.4	S. westward	1	C. K. 1 . .	Over mountains. Smoky. [Smoky.
	6	.076	64.3	66.0	57.4	62.8		66 0	65.5	Southward .	1	C. & C. K. 5	
	9	.109	62.5	60.0	53.6	58.5		61.0	60.8	N.E. . .	1	K. & K. S. 10	
	Midn't.	.091	62.7	57.3	52.5	57.2		58.6	59.0	N.E. . . .	3	K. & K. S. 10	Max. temp., 69°.8; min., 47°.6.
27	3 A. M.	.057	63.2	55.5	50.9	53.8		56.7	56.6	S.S.W. . .	2	K. & K. S. 10	Rain fallen during day, 0.460 in.
	6	.157	61.4	55.0	50.6	52.2		55.8	55.7	S.W. . .	5	K. & K. S. 10	
	9	.157	60.5	58.5	54.9	57.7		58.3	58.8	N'd and W'd	2	K. & K. S. 10	
	Noon.	.232	61.7	60.5	56.3	58.1		59.7	60.2	S.S.W. .	5	K. S. 10 . .	
	3 P. M.	.248	62.0	56.3	53.1	54.7		57.0	57.5	Calm . .	0	K. S. 10 . .	Heavy rain; clouds from south and
	6	.216	62.5	55.0	52.7	54.0		54.9	55.7	S.S.W. . .	1	K. S. 10 . .	eastward.
	9	.196	63.0	54.5	50.0	52.6		54.2	54.9	S.S.W. . .	1	K. S. 10 . .	
	Midn't.	.172	62.8	53.7	46.6	48.9		54.0	54.0	S.S.W. . .	1	K. S. 10 . .	Max. temp., 69°.6; min., 45°.8.
28	3 A. M.	.230	63.0	52.2	44.7	46.7		53.0	53.0	Calm . .	0	K. S. 10 . .	
	6	.252	62.5	52.1	44.9	47.0		53.4	53.6	Calm . .	0	K.S. & fog 10	
	9	.342	62.3	57.7	53.6	54.9		56.4	56.4	N.E. . . .	3	K. & K. S. 9	
	Noon.	.368	64.3	63.3	57.4	59.7		62.0	62.0	N.W. . .	2	K. & C. K. 6	
	3 P. M.	.316	65.4	64.7	57.2	62.6		64.2	64.0	W.S.W. .	4	K. & C. K. 3	
	6	.351	63.8	58.3	53.6	56.3		58.0	58.0	W.S.W. .	2	K. & K. S. 7	
	9	.377	63.3	56.7	53.1	54.9		57.2	56.8	S.W. . .	2	K. & C. K. 4	
	Midn't.	28.349	63.0	52.8	50.0	51.1		54.2	54.5	Westward .	Air.	0	Max. temp., 69°.0; min., 53°.0.

AUGUST, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Register. Max.	Register. Min.	Direction.	Force.		
		Inches.	°	°	°	°	°	°	°				
29	3 A. M.	28.282	63.3	48.4	46.2	49.7		51.0	51.3	N.W. . .	1	C. K. & C. 1	
	6	.270	61.4	48.0	46.8	46.8		49.5	49.6	Calm . .	0	Fog 10 . .	Drizzling rain.
	9	.270	60.0	53.5	52.2	53.4		52.8	53.2	N.W. . .	2	Fog 10 . .	Slight.
	Noon.	.234	61.5	62.7	57.2	59.0	59.8	60.5	61.0	Calm . .	0	C. 1 . . .	
	3 P. M.	.168	64.2	67.6	58.3	61.0		66.0	66.3	S.S.W. . .	1	C. 8 . . .	Mackerel sky.
	6	.174	64.0	63.0	56.7	59.9		63.0	63.2	Calm . .	0	C. 1 . . .	
	9	.174	63.0	57.0	53.1	55.9		58.4	58.8	Calm . .	0	0	
	Midn't.	.180	62.5	55.5	50.4	52.0		55.0	55.2	Calm . .	0	0	Max. temp., 66°.4; min., 47°.2.
30	3 A. M.	.160	63.0	49.4	46.7	48.4		50.3	50.9	S'd and E'd	1	C. 2 . . .	Halo around the moon.
	6	.176	60.2	49.2	46.2	49.0		49.9	50.2	Calm . .	0	C. & C. K. 9	
	9	.202	59.5	55.2	51.8	53.6		55.0	54.8	S.W. . .	2	K.K.S. & C.6	
	Noon.	.184	60.7	64.3	56.5	61.2		62.6	62.5	S.W. . .	1	K.C.K.&K.S.7	
	3 P. M.	.178	62.1	63.0	55.2	61.0		63.5	63.7	Southerly .	1	K.C.K.&K.S10	
	6	.194	61.5	57.6	51.5	56.3		53.4	53.0	S. & E. . .	1	K. S. & C. K.7	
	9	.238	63.4	54.7	50.4	53.4		55.5	55.0	N.W. . .	3	K. & K. S. 10	
	Midn't.	.235	64.5	51.2	48.1	50.0		51.5	51.3	N.W. . .	4	K. & K. S. 5	Max. temp., 63°.7; min., 50°.0.
31	3 A. M.	.208	65.4	50.8	47.6	50.0		51.3	51.5	N.W. . .	2	K. & K. S. 8	
	6	.202	64.0	50.2	47.4	49.1		50.7	50.7	N.W. . .	1	K. & K. S. 10	
	9	.216	62.0	55.0	51.1	53.6		54.7	54.7	N.W. . .	1	K. & K. S. 10	
	Noon.	.206	61.5	59.0	52.5	56.7		57.5	58.0	W.N.W. .	1	K. & K. S. 9	
	3 P. M.	.184	64.2	62.4	54.4	59.9		61.4	62.3	S'd and W'd	1	C. K. 5 . .	
	6	.212	62.5	57.6	50.4	54.9		57.6	57.0	S.W. . .	2	C. K. 5 . .	
	9	.236	61.5	50.0	46.2	48.4		51.2	52.0	S.W. . .	1	C. K. 1 . .	
	Midn't.	28.254	60.0	46.5	44.6	45.9		48.5	49.2	N.N.W. .	1	0	Max. temp., 62°.5; min., 48°.5.

SEPTEMBER, 1850.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Register. Max.	Register. Min.	Direction.	Force.		
		Inches.	°	°	°	°	°	°	°				
1	3 A. M.	28.236	64.0	46.4	43.7	44.8		47.0	47.0	Calm . .	0	0	6 A. M., min. sky for night, 40°.6.
	6	.236	61.5	46.0	43.5	45.1		46.8	47.2	Calm . .	0	C. 2 . . .	
	9	.276	58.6	53.5	50 2	52.9	51.7	52.8	53.0	W.N.W. .	1	C. & C. K. 2	Late; smoky.
	Noon.	.265	60.7	61.2	53.4	59.0	58.6	59.6	59.4	S.W. . .	2	C. 1 . . .	
	3 P. M.	.223	62.5	64.5	53.6	62.6	62.5	63.7	63.4	S.W. . .	1	0	Light C. to northward.
	6	.225	61.7	57.4	48.6	55.9		58.5	58.3	S.W. . .	Air.	0	
	9	.216	60.0	50.5	45.9	50.0		52.7	52.8	Southward .	Air.	0	Late.
	Midn't.	.188	61.0	47.5	43.2	46 2		49.5	50.0	Southward .	2	0	Max. temp., 66°.3; min., 42°.5.
2	3 A. M.	.143	63.0	45.6	42.6	46.6		46.5	47.3	E.S.E. . .	3	0	
	6	.159	59.7	42.5	39.3	40.5		42.8	43.7	Calm . .	0	0	
	9	.172	58.0	55.5	49.5	53.2	54.0	53.5	54.0	Calm . .	0	0	Very smoky.
	Noon.	.150	61.5	66.6	56.3	64.9		64.9	65.4	S.W. . .	1	0	
	3 P. M.	.150	63.2	69.0	58.1	66.5		67.2	68 0	Southerly .	1	0	
	6	.224	63.0	59.2	52.2	56.7		59.1	59.4	S. . . .	1	0	
	9	.256	62.2	53.8	49.5	51.3		55.0	55.2	Calm . .	0	0	
	Midn't.	28.270	61.2	50.0	48.6	50.4		51.0	51.2	Northward .	1	0	Max. temp., 68°.7; min., 43°.2.

SEPTEMBER, 1850—Continued.

DATE.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Register. Max.	Register. Min.	Direction.	Force.		
		Inches.	°	°	°	°	°	°	°				
3	3 A.M.	28.250	60.6	49.2	45.7	49.0		50.0	50.6	Calm . .	0	0	6 A. M., min. sky for night, 41°.6.
	6	.262	57.2	45.5	43.2	45.0		45.8	46.0	N. . . .	1	C. 4 . . .	
	9	.302	57.1	54.5	50.2	52.0	52.6	54.8	55.0	Calm . .	0	C. 2 . . .	
	Noon.	.258	60.5	64.9	56.7	63.5	62.4	62.5	63.2	N.W. .	1	C. 4 . . .	
	3 P. M.	.228	63.0	68.0	56.5	65.7	65.0	66.7	66.7	S'd and W'd	1	C. & C. S. 5	
	6	.230	62.8	59.0	53.6	57.9		60.0	60.0	S.W. . .	1	C.S. & C. K. 9	
	9	.270	63.2	55.7	51.3	54.3		56.0	56.2	S'd and W'd	Air.	C. & C. K. 10	
	Midn't.	.246	61.6	53.0	49.3	51.3		53.7	53.8	E.N.E. . .	3	C.S.& K.S.10	Max. temp., 66°.5; min., 45°.5.
4	3 A.M.	.208	63.4	51.0	49.1	50.9		52.5	52.6	W. by S. .	2	K. & K. S. 10	
	6	.188	62.0	50.6	48.1	49.1		51.5	51.5	N.E. . .	1	K. & K. S. 10	Clouds from northwest.
	9	.230	62.0	54.0	50.9	53.2		54.0	54.2	S'd and E'd	1	K. & K. S. 10	
	Noon.	.210	63.0	60.5	54.9	58.8		60.7	61.0	Calm . .	0	K. & K. S. 10	
	3 P. M.	.164	63.2	61.0	55.2	56.9		60.5	61.0	Southward .	1	K. & K. S. 10	
	6	.192	62.5	57.6	53.7	55.2		57.4	58.0	Southward .	1	K. & K. S. 10	
	9	.240	64.0	53.2	50.0	51.6		54.0	54.0	S.S.E. . .	3	K. & K. S. 10	
	Midn't.	.246	64.0	51.4	49.1	51.1		52.2	52.2	S.S.E. . .	2	K. & K. S. 10	Max. temp., 62°.5; min., 50°.5.
5	3 A.M.	.240	64.0	51.5	49.0	51.3		52.0	52.0	Southward .	1	K. & K. S. 10	Rain commenced 1h. 10m. A. M.
	6	.252	60.2	50.8	48.8	50.0		51.7	51.7	S. and E'd .	1	Fog 10 . .	Some slight rain during the morning.
	9	.288	59.5	52.1	50.2	51.3		52.5	52.7	S. and E. .	1	Fog 10 . .	Quantity of rain fallen during the
	Noon.	.293	62.0	58.4	53.4	56.7		57.4	57.2	S.W. . .	1	K.KC.&K.S.8	day 0.900 in.
	3 P. M.	.272	63.0	61.3	53.4	56.9		60.5	60.3	S.W. . .	1	K. 3 . . .	Clouds from northwest.
	6	.272	62.3	57.5	51.5	55.9		58.2	58.0	S.W. . .	Air.	K.C.& C.S.3	
	9	.292	60.4	52.3	49.1	51.5		54.2	54.2	N.W. . .	1	0	
	Midn't.	279	59.0	49.5	46.6	48.1		51.2	51.5	Northward .	Air.	0	Max. temp., 60°.6; min., 51°.0.
6	3 A.M.	.244	61.0	45.3	44.1	45.3		47.7	48.0	N.E. . . .	2	0	6 A. M., observations late.
	6	.230	57.6	45.7	44.6	45.9		45.7	46.2	N.W. . .	2	K.C.K.&C. 3	Some fog about the mountains.
	9	.230	57.5	52.3	49.3	51.9		51.0	51.0	S.S.E. . .	2	K.C.K.&C. 9	Foggy.
	Noon.	250	60.2	60.0	54.4	55.9		59.2	59.2	S.S.W. . .	2	K & C. K. 4	
	3 P. M.	.240	63.0	63.2	55.7	59.4		62.0	62.2	Southward .	1	K. & C. K. 2	Over Andes.
	6	.266	62.5	58.5	51.3	55.2		58.0	58.0	Southerly .	1	C. K. 1 . .	
	9	.272	61.5	53.5	47.0	56.4		53.5	54.0	Calm . .	0	0	
	Midn't.	.324	61.6	46.5	42.8	45.7		49 0	49.0	N.E. . . .	1	0	Max. temp., 62°.5; min., 44°.7.
7	3 A.M.	.286	60.4	44.0	40.8	42.8		45.4	46.0	S.E. . . .	1	0	
	6	.262	58.7	45.4	43.2	47.4		45.4	45.6	N.E. . . .	1	0	Late.
	9	.262	58.0	54.5	49.7	52.4	53.5	53.2	54.0	N.E. . . .	1	0	
	Noon.	.220	60.5	65.0	55.2	62.6	64.0	62.5	63 0	Calm . .	0	0	C. very slight to S'd and W'd.
	3 P. M.	.180	63.7	70.5	59.0	67.1	64.8	68.0	68.5	Southward .	1	C. 1 . .	To southward.
	6	.174	62.7	62.3	52.0	59.9		63.0	62.6	S.W. . .	1	C. 4 . . .	
	9	.150	61.0	55.5	49.3	54.5		57.0	57.2	S.S.E. . .	1	0	
	Midn't.	.128	60.5	52.5	46.6	52.0		55.0	55.0	N'd and W'd	2	0	Max. temp., 68°.5; min., 43°.7.
8	3 A.M.	.086	62.0	50.0	46.4	50.0		51.0	51.0	Northward .	1	0	6 A. M., min. sky for night, 45°.8.
	6	.083	57.6	49.6	46.2	50.2		50.8	50.7	S. and E. .	1	K.C. &C.K.5	
	9	.089	58.8	61.0	54.5	61.7		60.5	60.4	S.W. . .	1	K.C.& C.S.7	
	Noon.	.079	63.4	71.7	58.7	71.4		69.5	69.4	S.W. . .	1	C. & C. S. 5	
	3 P. M.	.048	66.8	73.9	59.7	71.8		72.0	71.6	S.W. . .	1	C. & C. S. 5	
	6	.080	65.8	64.0	53.6	62.4		64.8	65.2	S.W. . .	1	C. & C. K. 4	
	9	.128	61.6	56.7	50.0	55.2		58.7	58.3	E.N.E. . .	1	0	
	Midn't.	.138	60.8	54.0	50.0	53.1		56.0	55.7	Westward .	1	K. & K. S. 4	Max. temp., 72°.2; min., 50°.3.
9	3 A.M.	.128	59.0	52.3	47.2	50.0		53.8	53.6	E. by S. . .	3 to 5	K. & K. S. 9	Wind in gusts.
	6	.206	56.6	49.5	46.6	48.6		51.5	51.5	Calm . .	0	C. & C. S. 1	
	9	.212	57.7	57.3	53.1	55.2	57.4	57.0	56.2	Calm . .	0	C. 1 . . .	To southward and westward.
	Noon.	.184	61.4	65.7	55.9	62.2	63.5	64.0	64.2	Southerly .	1	C. 1 . . .	Over Andes.
	3 P. M.	.174	63.7	71.0	59.2	68.0	69.3	69.0	65.5	S.S.W. . .	1	C. 4 . . .	
	6	.200	63.0	61.5	53.1	59.4		62.0	62.0	S.S.W. . .	1	0	
	9	.216	61.2	56.5	50.2	55.2		58.0	58.0	Calm . .	0	0	
	Midn't.	28.216	61.2	54.5	49.0	52.7		55.5	55.5	N'd and E'd	1	0	Max. temp., 69°.0; min., 50°.2.

SEPTEMBER, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register.			Direction.	Force.		
							Sky.	Max.	Min.				
		Inches.	°	°	°	°	°	°	°				
10	3 A. M.	28.170	61.0	50.1	46.1	49.3		52.9	52.0	Northward .	1	0	6 A. M., min. sky for night. 47°.2.
	6	.141	57.7	48.7	45.9	47.6		50.6	50.5	Eastward .	Air.	C. 2 . . .	
	9	.144	58.8	59.6	54.9	58.3	58.5	58.4	58.3	N.E. . . .	1	C. 1 . . .	Smoky.
	Noon.	.126	62.5	70.5	59.7	70.0	68.6	68.8	68.7	S.W. . .	1	C. 2 . . .	Smoky to the south and west.
	3 P. M.	.120	68.0	74.7	62.0	72.3	71.0	72.6	72.6	S.W. . .	2	C. & C. S. 6	
	6	.122	67.0	67.6	58.5	65.7		67.6	67.2	S.S.E. . .	1	C. & C. S. 2	
	9	.129	63.7	60.1	54.3	58.1		61.5	60.8	S.S.E. . .	2	C. & C. S. 1	
	Midn't	.127	62.2	55.8	51.5	54.0		57.8	57.5	N.E. . .	1	0	Max. temp., 72°.7; min., 50°.0.
11	3 A. M.	.098	62.7	52.3	49.1	50.9		54.6	54.6	N.E. . . .	1	0	
	6	.099	61.0	51.0	50.0	53.4		52.3	52.3	N.E. . . .	1	C. & C. S. 4	
	9	.112	61.2	61.5	55.7	59.0	59.2	59.2	60.7	S'd and W'd	2	C. 4 . . .	Slight, and smoky.
	Noon.	.112	64.5	70.0	59.7	68.0		69.0	69.0	S'd and W'd	1	C. 7 . . .	Slight.
	3 P. M.	.100	68.0	74.5	61.4	70.2		72.5	71.5	S.S.W. . .	1	C. 6 . . .	Slight.
	6	.100	65.0	65.2	59.0	63.0		65.5	65.2	S.W. . .	2	C. K. 8 . .	
	9	.124	60.0	56.0	51.0	54.9		58.0	57.2	S.S.W. . .	1	C. 4 . . .	Slight.
	Midn't.	.116	57.0	51.7	48.7	51.3		52.1	51.3	S.S.E. . .	0	Fog 10 . .	Max. temp., 71°.5; min., 52°.1.
12	3 A. M.	.098	58.0	50.0	47.2	49.4		51.5	51.5	S.E. . . .	1	Fog 10 . .	
	6	.117	57.6	49.8	48.6	49.5		50.6	50.5	Calm . .	0	Fog 10 . .	
	9	.106	57.7	55.7	52 9	54.9		55.5	55.5	N.E. . . .	1	K. & K. S. 10	
	Noon.	.090	60.0	63.2	55.4	61.7		63.4	63.3	N.W. . .	1	C. & C. S. 6	
	3 P. M.	.060	62.6	67.0	56.7	64.9		66.8	66.5	S.W. . .	1	C. & C. S. 6	
	6	.055	62.6	61.0	55.2	59.0		61.3	61.3	W.S.W. .	1	C.C.S.&K.S. 7	
	9	.082	62.2	54.9	51.3	53.8		56.2	56.2	S.W. . .	1	C. & C. K. 4	
	Midn't.	.079	61.3	52.5	49.7	52.2		54.2	54.2	W. . . .	3	K. & K. S. 9	Max. temp., 66°.7; min., 49°.5.
13	3 A. M.	.032	61.0	51.8	49.1	51.1		53.0	53.0	N.W. . .	1	K. & K. S. 4	Quantity of rain that fell during day 0.918 *in.*
	6	.059	60.0	51.0	49.1	50.6		52.3	52.4	S.W. . .	1	Fog 10 . .	
	9	.098	59.0	52.2	49.3	50.9		52.4	52.7	S.W. . .	1	K. S. 10 . .	
	Noon.	.136	62.0	53.5	49.7	51.3		52.7	52.9	S.W. . .	1	K. S. 10 . .	Fog.
	3 P. M.	.078	62.2	55.8	50.4	54.0		55.2	56.0	Calm . .	0	K. S. 10 . .	
	6	.056	60.5	53.0	49.1	52.7		54.0	54.2	S.S.E. . .	1	K. S. 10 . .	
	9	.070	61.0	52.1	48.4	51.6		53.4	53.4	W.S.W. .	2	C. K. & S. 10	Raining. [min., 44°.8.
	Midn't.	.108	58.2	45.2	43.2	45.0		44.8	45.0	W.S.W. .	3	C. K. & S. 10	Raining heavily. Max. temp., 56°.7;
14	3 A. M.	.170	61.3	44.0	41.2	43.6		44.5	44.5	S.S.E. . .	4	C. K. & S. 10	Hard rain.
	6	.217	56.2	44.2	42.3	43.9		44.8	45.7	N.W. . .	1	K. K. S.& fog	Much snow on mountains.
	9	.235	56.0	47.4	44.6	47.0		47.7	48.4	S. by E. . .	2	K. & K. S. 10	
	Noon.	.232	58.7	52.5	46.2	51.1		52.4	52.5	Calm . .	0	K. & K. S. 10	Clouds breaking. Rain since midnight 1.220 *in.*
	3 P. M.	.190	60.0	56.0	48.4	54.7		56.0	55.7	S. W. . .	1	K. & C. K. 5	
	6	.184	60.6	51.7	46.2	50.9		52.6	52.6	S.S.W. . .	1	K. & K. S. 6	
	9	.166	60.3	47.0	44.1	47.0		49.4	49.5	E.N.E. . .	1	K. 5 . . .	Clouds from northeast.
	Midn't.	.108	58.2	44.5	42.3	43.9		45.7	46.7	Northward .	1	K. & K. S. 2	Max. temp., 56°.4; min., 43°.4.
15	3 A. M.	.056	58.0	42.4	40.0	41.5		44.3	45.2	N. by E. . .	1	C. & K. S. 1	
	6	.046	57.3	40.5	39.1	40.8		42.6	43.7	N.W. . .	1	C.C.K.&C.S.6	
	9	.042	55.5	48.5	44.0	47.8		48.0	48.0	N.W. . .	1	C.C.K.&C.S.10	
	Noon.	.042	57.5	52.7	46.6	50.6		52.0	53.1	Calm . .	0	C.C.K. &S. 10	
	3 P. M.	.034	61.0	55.0	48.1	51.1		54.0	54.0	Westward .	1	C.C.K. &S. 10	
	6	.052	60.0	51.2	46.6	48.5		51.9	51.9	Southward .	1	C.C.K. &S. 10	
	9	.058	60.0	49.8	46.2	47.1		50.0	50.0	Calm . .	0	C.C.K. &S. 10	
	Midn't.	.054	59.7	47.7	45.2	46.2		48.7	48.7	S.S.E. . .	2	C.C.K. &S. 10	Max. temp., 53°.1; min., 42°.9.
16	3 A. M.	.000	59.2	46.5	44.4	45.5		47.3	47.3	Southerly .	1	C.C.K.&S. 4	Rain fallen, 0.870 *in.*
	6	.032	55.2	41.8	40.3	41.7		43.4	44.0	N.E. . .	1	K. & C. K. 3	
	9	.052	54.6	51.2	45.5	50.0	49.7	50.3	50.6	S.W. . .	1	K. & C. K. 5	
	Noon.	.062	57.4	54.5	47.2	52.2		53.7	54.4	W.S.W. .	2	K. 10 . .	
	3 P. M.	.120	60.2	47.4	45.0	45.7		46.3	46.5	S'd and E'd	2	Rain . . .	Clouds from northwest.
	6	.188	59.5	46.7	42.8	45.5		45.8	46.3	N.E. . . .	1	Rain . . .	
	9	.224	61.4	45.0	42.1	43.7		45.5	46.0	N.E. . . .	1	K. 10 . .	
	Midn't.	28.234	58.0	46.0	44.6	44.1		46.0	46.0	N.E. . . .	1	Rain . . .	Max. temp., 56°.7; min., 43°.5.

SEPTEMBER, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Register. Max.	Register. Min.	Direction.	Force.		
		Inches.	°	°	°	°	°	°	°				
17	3 A. M.	28.238	58.4	45.5	41.5	44.6		45.5	46.2	N.N.E. . .	2	K. & K. S. 10	
	6	.260	57.4	45.2	43.2	45.9		45.2	45.7	S.S.W. . .	1	K. & K. S. 9	
	9	.330	56.2	50.7	47.3	49.8		50.5	50.5	N'd and W'd	1	K. & K. S. 10	
	Noon.	.342	57.5	54.0	47.6	51.1		52.0	52.0	W. by N. .	3	N. 10 . .	
	3 P. M.	.316	58.0	55.3	48.8	53.4		54.0	54.0	Calm . .	0	K. S. 10 . .	
	6	.326	58.0	51.3	46.2	50.0		51.5	51.5	Eastward .	3	K. S. 10 . .	
	9	.344	47.6	47.8	43.2	46.2		47.5	47.8	N.E. . . .	1	K. & K. S. 10	
	Midn't.	.304	57.5	44.5	43.8	43.7		46.0	45.9	N.E. . . .	1	C. K. 10 .	Max. temp, 56°.0; min., 44°.2. [Taken at 1 A. M.
18	3 A. M.												
	6	.283	56.2	43.0	40.8	42.6		43.0	44.0	S.W. . .	1	K. & C. K. 6	
	9	.283	54.3	51.2	46.6	51.1	51.4	51.2	51.4	S.W. . .	1	C. & C. K. 3	
	Noon.												
	3 P. M.												
	6	.226	57.3	56.2	48.6	54.7		57.0	57.0	S.W. . .	1	C. & C. S. 1	
	9	.208	55.4	48.5	45.0	48.1		53.0	50.8	Calm . .	0	C. & C. S. 3	
	Midn't.	.167	55.8	45.2	42.1	44.8		47.2	47.6	E.N.E. . .	1	C. S. 6 . .	Max. temp., 62°.6; min., 43°.6.
19	3 A. M.												
	6	.092	42.7	46.5	43.7	47.0		47.0	47.0	N. eastward	1	C. & C. S. 8	
	9	.068	53.7	58.7	51.3	55 9		55.5	55.7	S.W. . .	1	C. S. 9 . .	
	Noon.	.074	57.0	65.2	53.1	64.6		65.2	65.1	W.S.W. .	3	C. S. 8 . .	
	3 P. M.	.070	61.0	67.7	57.2	66.6		67.7	67.7	W.S.W. .	3	C.,C.S.&C.K 7	
	6	.090	60.5	60.6	54.5	58.1		60.0	60.2	S.W. . .	1	C.,C.S.&S.7	
	9	.109	57.5	53.8	49.3	52.2		54.2	54.4	S.S.W. . .	1	C.,C.K.&S.6	
	Midn't.	.116	55.0	49.5	45.7	49.1		51.0	51.0	S.W. . .	1	C. S. 8 . .	Max. temp., 70°.4; min., 44°.4.
20	3 A. M.												
	6	.176	56.0	46.8	44.1	46.4		47.5	47.5	Calm . .	0	C S. & K.S. 9	
	9	.196	53.6	51.0	45.9	49.1		50.0	50 4	S.E. . . .	1	S. & K. S. 10	
	Noon.	.219	55.8	59.2	51.1	56.5		57.7	57.3	S.W. . .	3	K. & C. K. 7	
	3 P. M.	.232	58.4	61.8	52.9	59.7	59.7	61.4	60.3	S.S.E. . .	2	C. 3 . . .	
	6	.222	58.5	58.5	51.5	56.5	55.2	58.2	57.0	S.W. . .	2	C. 2 . . .	
	9	.202	61.0	51.7	47.4	50.2		52.7	53.2	Calm . .	0	C. S. 1 . .	
	Midn't.	.192	57.5	47.7	45.5	47.4		50.4	51.0	Eastward .	1	0	Max. temp., 71°.3; min., 47°.7.
21	3 A. M.												
	6	.224	57.4	50.5	48.6	53.1		51.7	50.8	S.E. . . .	1	C. & C. S. 3	
	9	.206	55.2	53.3	49.5	53.1		53.7	53.7	S.S.W. . .	1	C.C.S.&K. 6	
	Noon.	.179	58.4	64.8	55.2	61.7		63.7	62.8	S.W. . .	3	C.S.&C.K. 9	
	3 P. M.	.153	60.2	64.2	55.4	61 7		62.5	62.3	S.W. . .	5	K.S. & C.K. 9	
	6	.164	61.2	56.5	50.2	55.4		57.5	56.4	S.W. . .	3	C. S. 10 . .	
	9	.162	61.6	54.5	50.2	53.6		55.4	55.4	N.W. . .	1	C.S.&C.K.10	
	Midn't.	.169	60.8	52.0	48.8	51.5		56.7	54.7	Calm . .	0	S. & K. S. 10	Max. temp., 66°.5; min., 53°.6.
22	3 A. M.												
	6	.140	58.8	49.3	46.8	49.1		50.4	50 8	S.W. . .	1	K.K.S.&C.K. 9	
	9	.162	58.0	55.7	51.3	55.4		55.6	55.4	E.S.E. . .	3	K.S. & K.S.8	
	Noon.	.152	59.7	64.2	54.3	62.2		64.0	63.3	E.S.E. . .	2	C.S. & C.K. 7	
	3 P. M.	.152	62.0	67.0	54.9	65.5		67.4	66.4	S.W. . .	5	C.S. & C.K. 8	
	6	.172	62.0	60.3	55.9	58.5		60.0	60.0	S.W. . .	1	K.C. & C.S. 5	
	9	.172	64.0	54.0	50.0	53.6		55.4	55.5	E.N.E. . .	1	C.,C.S.&C.K. 8	
	Midn't.	.146	59.1	51.4	47.0	50.0		52.2	52.6	Southward .	1	K.K.S.&C.K. 8	Max. temp., 67°.6; min., 50°.0.
23	3 A. M.												
	6	.144	59.6	48 2	45.3	47.6		49.0	49.4	N.E. . . .	1	K.K.S.&C.K. 8	
	9	.156	58.0	56.1	51.3	55.9		55.7	55.6	N.E. . . .	1	K.K.S.&C.K. 6	
	Noon.	.167	61.5	63.3	52.9	59.0		62.5	62.2	E.S.E. . .	1	K. & C. K. 5	
	3 P. M.	.124	62.7	66.3	53.1	63.5		64.8	64.5	E.S.E. . .	1	K. & C. K. 8	
	6	.156	62.4	56.8	52.2	54.9		56.5	56.7	S.S.W. . .	4	K. & K. S. 10	
	9	.154	64.4	52.2	49.5	51.1		52.0	52.7	S.W. . .	5	K. & K. S. 10	[zling.
	Midn't.	28.132	63.3	50.2	47.0	48.8		50.0	50.8	S.S.W. . .	3	Rain. . .	Max. temp., 65°.3; min., 43°.2. Driz-

SEPTEMBER, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Max.	Min.	Direction.	Force.		
		Inches.	°	°	°	°	°	°	°				
24	3 A. M.												
	6	28.127	60.4	49.1	46.6	47.6		48.0	49.4	S.S.W. . .	4	Rain . . .	Drizzling.
	9	.153	58.6	46.9	45.3	46 4		46.8	48 0	S.S.W. . .	5	Rain . . .	Do.
	Noon.	.217	60.4	48.3	44 6	47.2		48.9	49.0	S.W. .	1	Rain . . .	Clouds from S.W.
	3 P. M.	.235	60.3	47.5	43.5	46.2		47.2	47.8	N.E. . . .	1	Rain . . .	Rain fallen since the commencement
	6	.252	60.5	46.5	42.8	45.3		46 4	47.0	Southward .	2	Rain . . .	of the shower, (about midnight of
	9	.292	61.8	45.8	42.8	44.6		46.4	47.2	Eastward .	1	K. S. 10 .	the 23d,) 1.100 *in.*
	Midn't.	.329	60.6	45.0	43.2	45.0		45.5	46.6	W. . . .	1	Rain . . .	Max. temp., 56°.4; min., 45°.5.
25	3 A. M.												
	6	.399	58.0	44.2	42.3	43.5		44.5	45.5	S.S.E. . .	1	K. & K. S. 10	
	9	.424	56.6	52.5	47 2	49 7		49.8	50.4	N.E. . . .	1	K. & C. K. 7	
	Noon.	.386	59.0	56.4	48.0	52.9		54.5	54.5	N.E. . . .	1	C. K. 5 . .	Rain since midnight, 0.390 *in.*
	3 P. M.	.332	62.0	58.5	50.9	56.7		58.0	57.5	S.S.W. . .	1	K. 4 . . .	
	6	.292	59.5	55.0	49.1	53.4		55.0	55.2	S S.E. . .	1	C. & C. S. 1	
	9	.260	58.3	50.2	45.9	48.6		51.2	51.5	N.E. . . .	1	0	
	Midn't.	.191	60.5	48.7	45.9	48.6		49.8	50.7	N.W. . . .	1	K. & K. S. 10	Max. temp., 59°.4; min., 45°.0.
26	3 A. M.												
	6	.131	58 2	47.2	44.6	45 9		47.4	47.8	N.E. . . .	1	K. & K. S. 10	Clouds from N.N.E.
	9	.123	57.3	52.5	49.1	51.5		51.8	52.2	N.E. . . .	1	K. & K. S. 10	At 0*h.* 25*m.* 45*s.* A. M., an earthquake,
	Noon.	.121	59.5	58.7	51.8	56.7		57.2	57.0	S.W. . .	1	K. & K. S. 10	which lasted 2*s.*—A. MacR.
	3 P. M.	.074	61 0	57 3	51.1	55.9		56 5	56.5	S.W. . .	1	K. & K. S. 10	
	6	.150	59.5	52.5	48.6	50.9		52.3	52.5	S.W. . .	1	K. & K. S. 8	
	9	.194	61.6	50.0	47.4	49 5		50.5	51.0	N.E. . . .	2	K. & K. S. 10	
	Midn't.	.190	62.0	49.5	46.4	48.8		50.4	50.7	N.E. . . .	1	K. & K. S. 10	Max. temp., 58°.7; min., 47°.5.
27	3 A. M.												
	6	.276	59.3	49.0	46.6	48.6		49.7	50 3	N.E. . . .	1	K. & K. S. 9	
	9	.317	58.3	56.7	50.4	55.9		55.5	55.5	S.W. . .	1	K. & C. K. 6	
	Noon.	.303	59.8	62.4	53.4	60 1		61.2	60.7	N.W. . .	1	K. 2 . . .	
	3 P. M.	.274	61.2	65.0	52.7	62.6	63.0	63.8	64.3	S.W. . .	3	K. 2 . . .	
	6	.272	61.0	60.5	53.6	58.3		60.2	60.2	S.W. . .	2	K. K. S. & C. 1	
	9	.292	60.0	53.0	50.2	52.5		54.5	54.7	S.S.E. . .	1	K. & K. S. 1	
	Midn't.	.277	60.7	49.7	47.6	49.5		51.2	51.6	Calm . .	0	0 . . .	Max. temp., 59°.5; min., 49°.4.
28	3 A. M.												
	6	.296	58.6	50.0	48.1	49.5		50.7	51.3	S.E. . . .	1	Fog 10 . .	
	9	.292	57.4	54.0	50.6	52.7		54.2	54.2	Southward .	1	K. & K. S. 10	
	Noon.	.298	59.0	55.0	50.9	53.4		54.4	54.5	S.W. . .	3	K. & K. S. 10	
	3 P. M.	.276	60.7	58.0	52.0	55.9		56 8	56 8	S.W. . .	1	K. & K. S. 10	
	6	.262	60.5	56.4	50.9	54.9		56 2	56.3	S.W. . .	1	K. & K. S. 8	
	9	.264	62.0	52.3	49.1	50.9		53.3	53.4	E.S.E. . .	1	K. & K. S. 2	
	Midn't.	.241	64.2	49.3	47.2	48.8		50.7	51.3	Northward .	1	0	Max. temp., 57°.4; min., 50°.0.
29	3 A. M.												
	6	.268	61.7	51.0	48.6	50.2		51.3	51.6	S.S.E. . .	1	K. & K. S. 10	
	9	.202	59 6	58.3	52.9	57.4		57.2	56.8	N.E. . . .	2	K. & K. S. 10	
	Noon.	.180	60.7	63.4	55.9	62.4		61.5	62.0	N.W. . .	2	K. 4 . . .	
	3 P. M.	.152	61.9	65.5	55 4	63.5		64 7	64.3	S.W. . .	2	K. 3 . . .	
	6	.151	61.7	60.7	53.1	57.9		60.4	60.4	S.W. . .	3	K. & C. K. 3	
	9	.162	59.0	55.0	51.8	54.0		55.8	55.8	S.W. . .	2	K. & K. S. 10	
	Midn't.	.166	60.4	53.0	49.5	51.8		53.4	53.7	Westward .	2	K. & K. S. 7	Max. temp., 64°.6; min., 49°.0.
30	3 A. M.												
	6	.234	59.6	51.0	48.4	50.4		51.6	51.8	N.W. . .	1	K. & K. S. 10	Late.
	9	.257	58.7	55.3	51.5	54.9		55.3	55.4	N.N.W. .	1	K. & K. S. 10	About 2 A. M., quite a sharp earth-
	Noon.	.234	59.7	63.1	54.3	60.8	61.3	61.7	61.5	S.W. . .	1	K. 5 . . .	quake.
	3 P. M.	.199	61.0	62.7	53.8	61.2		62.5	62.2	N.E. . . .	2	K. 5 . . .	
	6	.198	61.5	61.4	54.3	60.1		61.4	61.4	S.W. . .	1	K. 1 . . .	
	9	.194	61.6	54.8	51.8	54.5		56.5	56 6	Calm . .	0	K. & K. S. 1	
	Midn't.	28.140	61.6	51.7	48.1	50.0		52.2	52.5	N.E. . . .	1	0	Max. temp., 64°.5; min., 49°.8.

OCTOBER, 1850.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Stand-ard.	Wet.	Dry.	Register. Sky.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°	°	°				
1	6 A. M.	28 061	58.3	50.2	47.2	49.1		50.4	50.7	Calm . .	0	K. & K. S. 10	Fog to the northward.
	9	.056	57.2	57.2	52.0	55.6		56.2	56.0	N.E. . .	1	K. & K. S. 10	
	Noon.	.082	58.7	61.8	54.0	59.7		60.3	60 0	S.W. . .	1	K. & K. S. 10	
	3 P. M.	.076	60.3	63.7	55 4	61.5		63.2	63.0	S.W. . .	1	K. & K. S. 9	
	6	.100	60.7	56.6	50.9	54 5		56.3	56.4	S.S.E. . .	1	K. & K. S. 9	
	9	.143	62.4	50.5	47 4	49.7		50.6	51.4	W.S.W. .	5	K. & K. S. 10	
	Midn't.	.150	62.4	48.0	45.9	47.4		48.5	49.0	W.S.W. .	3	Mist 10 . .	Max. temp., 63°.5; min., 48°.4.
2	6 A. M.	.176	60.2	46.8	45.0	45.9		47.3	48.0	E.S.E. . .	1	K. & fog 10	
	9	.194	57.0	51.4	47.4	50 2		51.1	51.6	Southward .	1	K. & K. S. 10	
	Noon.	.200	60.6	57.3	50.2	55 2		55.6	55.7	S.S.E. . .	1	K. & K. S. 10	
	3 P. M.	.148	62.0	60.9	51.5	58.5		59.7	59.5	S.W. . .	1	K.S.& K. C. 9	
	6	.137	61.6	56.0	49.3	54.3		55.7	55.8	S.W. . .	1	K. & C. K. 7	
	9	.140	62.4	50.0	45.9	49.1		51.3	51.5	N E. . . .	1	K. & K. S. 4	
	Midn't.	.128	63.5	47.7	44.6	47.2		49.0	49.6	N.W. . .	1	K. & K. S. 8	Max. temp., 60°.2; min., 47°.5.
3	6 A. M.	.132	60.5	47.4	44.1	46.8		47.7	48.4	S S.E. . .	1	K. & K. S. 10	
	9	.150	57.7	54.8	50.0	54.9		53.6	53.6	S.W. . .	2	K. & K. S. 8	
	Noon.	.160	61.0	58.5	49.7	55.6		56.5	56.5	S.W. . .	4	K. & K. S. 10	
	3 P. M.	.149	61.4	56.2	48.6	54.7		56.0	56.0	S.S.W. . .	3	K. & K. S. 10	
	6	.177	63.7	53.0	47.2	51.8		52.9	53.2	S.W. . .	4	K. & K. S. 9	
	9	.216	64.4	49.7	45.3	48.8		50.2	51.0	Southward .	3	K. & K. S. 10	
	Midn't.	.194	64.4	4?.7	44.6	47.6		49.0	49.7	S.E. . . .	2	K. & K. S. 10	Max. temp., 58°.3; min., 46°.5.
4	6 A. M.	.190	60.4	46.5	43.9	46.4		47.5	48.0	N.E. . . .	1	K. & K. S. 7	
	9	.214	58.3	55.4	48.8	53.4		53.5	53.6	W.	2	K. & K. S. 6	
	Noon.	.190	59.5	60.6	50.6	58.1		59.2	59.0	Westward .	1	K. 5 . . .	
	3 P. M.	.158	61.7	64.5	52.9	63.2		63.4	63.0	S.W. . .	3	K. 3 . . .	
	6	.166	60.6	56.8	49.7	54.9		56.9	56.8	S.W. . .	2	K. & K. S. 7	
	9	.223	63.7	51.5	46.8	50.9		52.0	52.2	Southward .	4	K. & K. S. 10	
	Midn't.	.226	61.7	50.8	46.4	50.0		51.3	51.5	N.E. . . .	3	K. & K. S. 10	Max. temp., 58°.4; min., 47°.0.
5	6 A. M.	.308	60.5	49.0	46.2	48.0		49.4	50.0	Calm . .	0	K. S. 10, .	6 A. M. There was evidently some rain during the night. At about 11 A. M., another shower, lasting half an hour. At 1*h.* 15*m.* P. M., hard rain commenced again. Quantity of rain during the day 0.402 *in.*
	9	.326	59.5	56.3	50 9	54.9		55.0	55.0	Calm . .	0	K. & K. S. 10	
	Noon.	.343	61.5	55.3	49.7	53.6		54.6	54.5	S.W. . .	4	K. & K. S. 10	
	3 P. M.	.315	62.5	56.3	49.7	54.3		55.7	55.7	S.W. . .	4	K. & K. S. 9	
	6	.285	62.5	54.7	48.8	53.6		54.4	54.6	S.W. . .	3	K. & K. S. 9	
	9	.290	62.2	51.5	46.6	50.4		52.0	52.4	Westward .	2	K. & K. S. 6	
	Midn't.	.228	62.6	48.5	45.3	47.6		50.0	50.4	N.W. . .	2	K. & K. S. 9	Max. temp., 53°.5; min., 49°.2.
6	6 A. M.	.155	61.5	47.2	44.6	46.6		47.8	48.5	Southward .	1	S. & K. S. 9	
	9	.165	60.0	53.7	48.4	52.5		53.2	53.2	Southward .	1	S. & K. S. 9	
	Noon.	.143	60.3	61.6	53.8	59.7		60.2	60.0	S.W. . .	3	K. S. & C. 9	
	3 P. M.	.124	61.0	62.7	50.6	59.9		62.2	62.2	S.W. . .	3	K. S. & C. 8	
	6	.146	61.0	58.9	50.9	56.7		58.4	58.4	S.W. . .	3	K. K.S.& C. 7	
	9	.125	60.7	53.0	49.1	53.2		54.5	54.6	Northward .	2	C. K. 5 . .	
	Midn't.	.108	60.2	51.0	48.0	50.0		52.7	53.0	N'd and E'd	Airs.	K. S. 9 . .	Max. temp., 65°.5; min., 48°.0.
7	6 A. M.	.092	58.0	49.2	46.2	47.4		49.8	50.4	Calm . . .	0	K C.S.&K.S.10	At 11*h.* 11*m.* 54*s.* A. M., a slight earthquake, which lasted about two seconds. It came directly from the south. A. MacK.
	9	.120	57.7	53.9	49.5	52.7		53.5	53.5	Calm . .	0	S. & K. S. 10	
	Noon.	.123	57.6	56.0	50.6	54.5		55.5	55.5	Calm . .	0	K. & K. S. 10	
	3 P. M.	.105	58.2	56.4	54.3	55.7		55.6	55.7	S.S.W. . .	1	K. & K. S. 10	
	6	.116	67.6	52.4	48.1	50.9		52.8	52.8	S.S.W. . .	1	K.K.S.&S. 10	
	9	.146	61.0	51.5	48.1	50.4		52.5	52.6	N.E. . . .	1	K. & K. S. 10	
	Midn't.	28.128	61.2	50.4	47.2	51.5		51.3	51.7	N.E. . . .	1	K. & K. S. 10	Max. temp., 56°.3; min., 49°.7.

OCTOBER, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°	°	°				
8	6 A. M.	28.191	50.0	49.9	47.4	49.1		49.7	50.3	N'd and E'd	2	Rain . . .	About 2h. 30m. A. M., commenced raining violently; ceased about 7 P. M.
	9	.250	58.6	50.9	48.1	50 2		50.4	50.8	N.E. . . .	2	Rain . . .	
	Noon.	.373	59.7	46.8	43.7	45.9		46 3	47.2	S.S.W. . .	4	Rain . . .	
	3 P. M.	.450	62.2	44.2	41.2	43.5		43.8	44.9	S.S.W. . .	1	Rain . .	Quantity of rain for day, 3.878 in.
	6	.506	58.6	41.9	40.0	41.7		42.0	42.3	N.E. . . .	2	Rain . . .	
	9	.506	61.2	41.5	38.6	41.0		42.2	43.6	N.E. . . .	3	K. S. 2 . .	
	Midn't.	.474	61.6	38.0	36.5	37.4		38.8	39.7	N.E. . . .	3	0	Max. temp., 53°.4; min., 36° 4.
9	6 A. M.	.395	57.2	42.4	40.8	42.4		41.4	42.0	N.E. . . .	1	0	Snow very low down the sides of the Andes.
	9	.355	53.4	48.4	43.5	46 4	43 0	45.6	46.3	N.E. . . .	1	K. 5 . . .	
	Noon.	.287	54.6	53.5	48.6	53.1	51.0	53.2	53.0	S.W. . . .	1	K. 1 . . .	Mostly over Andes.
	3 P. M.	.223	57.3	58.9	50.2	57.4	56.2	58.5	58 2	S.W. . . .	1	0	Some K. over Andes.
	6	.200	57.7	56.0	47.2	54.0		55.5	55.7	S.S.W. . .	1	0	Do do.
	9												
	Midn't.	.177	57.0	43.5	42.1	43.7		46.0	46.9	Calm . . .	0	0	Max. temp., 59°.5; min., 37°.0.
10	6 A. M.												
	9	.206	56.5	53.0	50.0	52 2	52.0	51.5	51.5	Calm . .	0	0	
	Noon.	.192	58.4	61.3	53.6	60.6	60.2	60.5	59 5	W.N.W. .	1	0	
	3 P. M.	.182	61.0	64.7	54.9	63.0	63 0	64.0	63.5	W. . . .	3	0	K. S. over Andes.
	6	.185	60.5	61.4	53.1	58.7	60.2	60 9	60 3	W.N.W. .	2	0	
	9	.187	62.3	54.5	50.9	54.5		55.5	56.0	Calm . .	0	0	
	Midn't.	.236	63.2	50.5	47.4	49.3		52.0	51.8	Calm . .	0	0	Max. temp., 63.°0; min., 49°.5.
11	6 A. M.	.233	61.2	49.2	47.4	50.0		48.4	49.0	Calm . .	0	0	Minimum sky for night, 49°.2.
	9	.261	58.9	58.6	53.6	58.1	55.0	56.7	57.0	W.N.W .	1	K. 6. . .	
	Noon.	.260	61.0	64.4	56.3	63.0	62.5	63.4	63.0	W.N.W. .	1	K. 4 . . .	
	3 P. M.	.263	63.8	63.4	55.9	62.2	63 2	63.7	63.1	W.N.W. .	3	K. & C. K. .	
	6	.270	62.0	59.0	52.9	57.2	62.6	58.5	58 0	W.S.W. .	2	K. S. 10 .	
	9	.285	64.7	57.0	53.4	55.4		57.0	56.5	Calm . .	0	K. S. 10 .	
	Midn't.	.248	64.9	56.0	52.7	54.0	56.0	56.0	55.9	N.N.E . .	2	K. S. 10 .	Max. temp., 67°.2; min., 46°.0.
12	6 A. M.	.216	63.0	53 0	50.9	51.8		53.0	52.0	W.S.W. .	1	K. S. 9 . .	Minimum sky for night, 55°.0. A clear streak westward.
	9	.190	60.6	61.3	54.5	60.8	63.0	59.8	59.2	N.N.E. . .	1	K. S. 6 . .	
	Noon.	.154	62.9	67.0	59.0	66.6	66.5	67.4	67.0	N.N.W. .	1	0	
	3 P. M.	.130	64.5	71.0	58.3	69.3	68.5	70.6	70.2	S.W. . .	1	0	
	6	.110	64.4	67.6	56.3	64.9	69.6	67.9	67 2	S. . . .	1	0	
	9	.121	62.8	58.0	52.2	57.6		59.6	59 0	S.W. . .	1	0	
	Midn't.	.076	62.0	54.6	50.0	53.6		56.3	55.9	Calm . .	0	0	Max. temp., 70°.7; min., 52°.2.
13	6 A. M.	.116	61.1	54 5	51.3	57.2		54.0	53.9	Calm . .	0	0	
	9	.154	61.9	62 5	57.4	64 1	61.2	60.5	61.3	W. . . .	1	0	
	Noon.	.176	62.2	68.2	59.4	66.8	68.0	67.4	67.0	W.S.W. .	3	K. 4 . . .	Clouds low on the Andes.
	3 P. M.	.174	64.0	70.0	58.1	67.1	67.3	68 6	68.0	W.S.W. .	4	K. S. 5 . .	
	6	.218	63.0	59.2	48.8	57.2		58.8	58.2	S.S.W. . .	3	C.S. & K.S.9	
	9	.250	62.4	54.0	47.9	51.0		55.8	55.4	S.S.W. . .	1	C. S. 2 . .	Clear to the southward.
	Midn't.	.220	59.5	49.5	44.6	50.0		51.0	50.9	S.S.W. . .	1	0	
14	6 A. M.	.265	59 0	44.5	44.1	46.2		46.0	46.5	Calm . .	0	0	
	9	.310	57.1	57.2	51.8	58.5	55.5	55.7	55.3	Calm . .	0	0	
	Noon.	.308	59 5	63.9	52.0	62.0	63.0	62.7	62.0	W.S.W. .	3	K. 1 . . .	Over Andes.
	3 P. M.	.270	61.3	65.5	50.9	63.0	64.2	66.5	67.0	W.S.W. .	4	K. S. 1 . .	Over Coast range.
	6	.308	61.0	58.0	49.5	58.1	56.9	57 6	57.8	S.W. . .	6	K. S. 1 . .	Do. do.
	9	28.312	58.0	51.2	44.6	50.0		52.1	52.0	S.W. . .	3	0	
	Midn't.												

OCTOBER, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register.			Direction.	Force.		
							Sky.	Max.	Min.				
		Inches.	°	°	°	°	°	°	°				
15	6 A. M.	28.234	57.8	48.0	44.1	48.6	42.0	48.4	48.4	Calm . .	0	0	
	9	.206	57.0	57.0	51.3	59.2	55.6	55.7	55.5	Calm . .	0	0	
	Noon.	.178	59.5	64.5	53.1	63.0	63.0	63.5	63.0	S.W. . .	3	0	
	3 P. M.	.163	62.0	67.5	54.5	67.1	65.5	69.3	69.0	S.S.W. . .	3	0	
	6	.160	62.5	64.0	51.8	61.0	59.5	63.8	63.0	Calm . .	0	0	
	9	.166	60.2	54.5	48.1	53.6		56.0	55.5	Southward .	1	0	
	Midn't.	.164	59.0	52.2	48.0	51.5		54.0	53.5	Calm . .	0	0	
16	6 A. M.	.200	59.0	48.0	47.6	50.2	46.0	49.7	50.0	Calm . .	0	0	A bank of stratus to S.W.
	9	.184	57.1	58.3	51.9	58.1		56.6	56.0	N'd and W'd	1	C. S. 9 . .	Do. do.
	Noon.	.208	59.3	63 8	54.3	60.8		62.0	61.4	N'd and W'd	3	K. & K. S. 9	
	3 P. M.	.200	62.0	66.3	56.1	63.0	64.0	64.3	64.0	W.S.W. .	3	C. & K. S. 3	Scattered C. K. & K. S. on the Andes.
	6	.230	62.0	67.0	52.2	58.3	58.4	60.0	60.0	S.W. . .	2	K. S. 4 . .	Heavy stratus over Andes.
	9	.272	64.0	56.3	51.3	55.9		56.5	56.0	S.E. . . .	1	K. S. 10 .	
	Midn't.	.284	60.1	53.7	49.1	52.7		54.2	53.9	W.N.W. .	2	C.S.& K.S.10	
17	6 A. M.	.240	60.0	53.8	51.8	55.4		54.0	53.5	W.S.W. .	1	C. S. & K. S. 9	Sky 52°.0.
	9	.252	60.0	60.7	52.2	57.6		59.1	58.6	Calm . .	0	C. S. & K. S. 7	
	Noon.	.232	61.4	65.6	55.2	64.1		64.8	64.0	W.S.W. .	2	C. S. . .	C. S. over the Andes.
	3 P. M.	.220	64.0	72.4	57.6	68.0		70.5	70.0	S. by W. .	4	K. & C. S. 4	
	6	.252	66.0	64.3	52.5	63.5		64.2	63.6	S'd and E'd.	1	C. S. 1 . .	
	9	.250	63.5	57.5	51.3	57.2		58.6	58.0	S'd and E'd	Airs.	0	
	Midn't.	.220	60.3	52.8	47.6	52.2		54.0	53.9	Calm . .	0	0	Max. temp., 68°.0; min., 50°.0.
18	6 A. M.	.192	57.0	48.3	48.1	52.2	47.3	50.7	51.0	Calm . .	0	0	Min. sky for night, 51°.0.
	9	.180	59.0	61.0	54.9	62.6	61.5	60.0	59.5	Westward .	1	0	Smoky atmosphere.
	Noon.	.161	63.0	70.7	59.7	70.2	67.5	69.7	69.0	Westward .	1	0	Do.
	3 P. M.	.140	65.0	75.0	57.9	70.8	72.4	74.2	73.4	S.S.W. . .	3	0	Do.
	6	.150	65.0	70.7	59.4	68.0	67.0	70.3	69.8	S S.W. . .	2	0	Do.
	9	.162	63.4	62.5	56.5	61.7		63.0	64.0	Calm . .	0	0	
	Midn't.	.162	63.2	58.8	54.0	58.5		60.0	61.0	Calm . .	0	0	Max. temp., 74°.5; min., 48°..8
19	6 A. M.	.168	62.4	59.5	50.9	53.8	53.4	58.0	57.5	S.W. . .	1	0	
	9	.190	62.6	66.0	58.5	66.0	64.3	64.9	65.0	Calm . .	0	0	
	Noon.	.186	65.4	65.0	60.1	71.8		68.5	67.5	S.W. . .	1	0	
	3 P. M.	.172	68.2	72.0	64.4	75.3	74.2	71.3	70.7	S.W. . .	2	K. 1 . . .	Over Andes.
	6	.172	68.0	70.4	61.5	68.7	67.0	69.7	69.0	W.S.W. .	2	0	
	9	.194	65.0	63.0	56.3	61.2		66.2	65.3	W.S.W. .	1	0	
	Midn't.	.178	63.5	59.0	54.0	58.1	60.3	60.3	59.8	Northward .	1	0	Max. temp., 76°.8; min., 59°.5.
20	6 A. M.	.150	54.2	51.0	49.7	52.0	52.0	53.0	53.0	N.E . . .	Airs.	0	A haze on base of Andes.
	9	.150	63.2	67 0	59.9	66.6	65.0	68.0	67.0	Westward .	1	0	
	Noon.	.150	67.5	71.0	63.3	73.4	71.7	72.5	72.0	Westward .	2	0	K. S. on base of Andes.
	3 P. M.	.148	70.3	70.8	63.5	73.4	74.0	71.7	71.0	S.W. . .	4	0	Do. do.
	6	.156	69.2	68.8	60.6	66.8	66.5	69 5	69.0	S.W. . .	3	0	K. on the Andes.
	9	.179	66.0	62.7	58.3	62.6		63.5	63.0	N.N.E. . .	1	0	
	Midn't.	.166	64.5	57.8	56.1	59.4		58.7	58.0	N.N.E. . .	1	0	Max. temp., 75°.5; min., 52°.0.
21	6 A. M.	.154	62.0	54.8	54.0	56.5		56.0	56.0	Calm . .	0	0	K. S. over Andes.
	9	.168	63.0	69.5	60.3	66.4	66.5	69.8	70.2	Westward .	Airs.	0	Do.
	Noon.	.152	67.2	68.9	63.9	72.5	72.0	69.2	68.4	N. and W'd.	1	C. S. 2 . .	
	3 P. M.	.136	68.6	71.0	62.2	73.8	73.0	71.6	70.9	S.W. . .	4	C. S. & K. S.	
	6	.154	67.7	68.8	59.4	66.2	67.4	68.2	67.6	W.S.W. .	1	C. & C. S. 5	
	9	.180	65.0	61.5	55.4	59.4		62.0	61.5	S.E. . . .	2	C. & K. S. 10	
	Midn't.	28.182	65.0	60.3	54.5	58.7		61.2	61.0	W.S.W. .	2	C. S. & K. S. 10	Max. temp., 71°.8; min., 54°.0.

OCTOBER, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Max.	Min.	Direction.	Force.		
		Inches.	°	°	°	°	°	°	°				
22	6 A. M.	28.188	63.0	55.5	52.5	53 1		56.7	56.5	Calm . .	0	C. S. 8 . .	
	9	.194	62 9	65.0	57.2	62.6		66.3	66.0	Westward .	1	C. S. 6 . .	
	Noon.	.179	65.5	68.5	60.1	68.4		67.0	66 5	W.S.W. .	2	C. K. 8 . .	Clear to S.W.; K. on base of Andes.
	3 P. M.	.164	67 5	69.0	61.0	70.5	71.0	69.0	68.5	W.S.W. .	3	C. K. 2 . .	Heavy K. on base of Andes.
	6	.176	67.0	67.2	57.6	66.0	67.0	67.9	67.0	W.S.W. .	1	C. K. 1 . .	Do. do.
	9	.194	65.2	64.5	54.7	60.1		65.2	66.0	Westward .	Airs.	0	
	Midn't.	.184	64.0	58.5	52.9	57.2		59.0	58.5	N.W. . .	1	0	Max. temp., 69°.1; min., 55°.0.
23	6 A. M.	.162	60.0	52.8	49.1	52 2	52.4	54.0	53.9	Calm . .	0	0	
	9	.182	61.7	63.2	56 3	63.0	63.0	64.0	64.3	S.W. . .	2	0	
	Noon.	.170	65.0	65.6	59.4	69.8	69.8	67.3	66.5	W.S.W. .	1	K. 1 . . .	Over Andes.
	3 P. M.	.146	67.0	68.9	61.7	72.5	73.0	70.0	69.0	W.S.W. .	2	K. 1 . . .	Do.
	6	.146	68.0	68.0	57.2	66.2	63.0	68.5	68.0	W.S.W. .	2	C. S. 1 . .	Do.
	9	.200	64.0	59.0	51.8	57 2		59.0	59.0	Southward .	1	0	
	Midn't.	.202	63.0	53.8	50.4	56.3		53.4	56.0	S.W. . .	1	0	Max. temp., 70°.2; min., 56°.1.
24	6 A. M.	.188	60 0	51.0	46.8	49.5	51.5	50.5	51.0	Calm . .	0	C. S. 1 . .	To the northw'd and to the southw'd.
	9	.195	61.5	60.0	55.6	64 9	61.5	61.5	61.0	N. . . .	1	0	Smoky atmosphere.
	Noon.	.206	64.0	64.5	58.5	68.2	68.0	65.5	65.5	W.S.W. .	2	K. 2 . . .	Scattered K.
	3 P. M.	.188	66.0	67.5	58.7	70.2	71.2	67.4	67.8	W.S.W. .	4	K. 2 . . .	
	6	.190	66.2	66.2	56.3	62.6	65.2	66.9	66.2	S.W. . .	2	0	K. S. to southward.
	9	.196	63.8	64.4	54.0	59.0		64.8	64.0	Calm . .	0	0	
	Midn't.	.172	62.5	55.5	50.9	56.1		56.5	56.5	N.W. . .	2	C. S. 2 . .	Max. temp., 68°.7; min., 49°.5.
25	6 A. M.	.122	59.2	58.0	48.8	52.0		63.0	63.0	Northward .	1	0	K. S. to north'd. Smoky atmosphere.
	9	.128	61.5	61.4	57.4	64.4	63 5	62.4	61.6	Westward .	1	0	Min. sky for night, 59°.5.
	Noon.	.130	64.5	67.3	58.7	71.6	70.0	66 9	65.1	S'd and E'd	1	0	
	3 P. M.	.124	68.5	72.0	61.2	72.5	74.3	71.5	70.5	S.W. . .	3	0	K. over Andes to the northeastward.
	6	.141	68.0	67.2	55.4	66.0	66.5	68.2	68.0	S.S.W. . .	2	0	
	9	.163	64.5	60.7	53.8	59.9		65.0	64.5	N.N.E. . .	2	0	
	Midn't.	.184	63.5	58.5	52.2	57.2		58.9	58.5	Calm . .	0	0	Haze above Andes.
26	6 A. M.	.100	60.5	51.5	48.6	50.4	51.0	51.5	52.0	Calm . .	0	0	
	9	.124	62.5	62.0	59.4	67.7	64.0	62.7	62.0	S. S. W'd .	1	0	
	Noon.	.130	66.7	68.5	60.1	71.4	72 0	68.0	67.5	W. S. W'd	2	0	
	3 P. M.	.106	68.0	72.5	59.4	74.5	73.0	71.5	71.0	W.S.W. .	2	0	
	6	.110	67.8	67.0	56.5	65.7	65.7	67.8	68.4	W.S.W. .	1	0	K. S. to the westward.
	9	.112	64.5	61.0	53.1	58.3		62.6	62.0	S.W. . .	1	0	[the horizon.
	Midn't.	.103	64.0	57.0	51.8	56.7		57.0	56.5	N. westward	1	C. 1 . . .	Max. temp., 76°.5; min., 58.°5. About
27	6 A. M.	.100	60.0	55.0	50.9	54.0		55.2	55.0	Westward .	1	C. S. 2 . .	Min. sky for night, 51°.5.
	9	.129	61.3	62.0	54.0	65.3	61.8	64.0	63.4	W.S.W. .	1	C. S. 2 . .	K. over the Andes.
	Noon.	.146	63.7	64.5	57.2	65.7	67.5	65.2	64.5	S.W. . .	2	K. S. 2 . .	Do.
	3 P. M.	.146	65.0	65.5	59.4	66.2	68.0	66.3	65.2	S.W. . .	5	K.S. & C.S. 2	Do.
	6	.175	63.5	60.3	53.4	59.4		61.7	61.5	S.W. . .	5	K.S.,S.&C.S.9	
	9	.180	61.0	53.4	50.0	54.0		55.5	55.2	S.W. . .	2	K.S.,S.&C.S.10	
	Midn't.	.164	60.0	52.0	49.1	52.5		54.0	53.5	S.W. . .	2	C. S. 10 . .	Max. temp., 72°.0; min., 50°.0.
28	6 A. M.	.204	57.0	53.5	47.4	49.5		54.5	54.0	Southward .	1	S. 10 . .	
	9	.200	60.0	60.5	54.9	60.1		63.0	62.0	S. eastward.	1	C.K. 8 . .	
	Noon.	.246	62.5	62.5	54.0	63.3		62.7	63.0	Southward .	2	C.S. & K.S.3	About the horizon in every direction.
	3 P. M.	.242	64.0	65.0	54.5	66.0		65.3	65.0	S.W. . .	3	K. S. 8 . .	
	6	.315	60.2	53.1	48.6	53.1		55.5	54.9	S.W. . .	4	K. S. 10 . .	Low on Andes.
	9	.335	62.0	49.5	47.2	50.4		51.5	52.0	W. S. W'd	2	K. S. 10 . .	
	Midn't.	28.312	59.5	47.6	45.0	48.8		49.5	49.5	W.S.W. .	3	K. S. 10 . .	Max. temp., 67°.0; min., 51°.0.

OCTOBER, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register.			Direction.	Force.		
							Sky.	Max.	Min.				
		Inches.	°	°	°	°	°	°	°				
29	6 A. M.	28.324	59 0	46.5	43.2	46 6		47.4	47.6	S.W. . .	1	K. S. 10 .	
	9	.340	57.2	50.9	45.2	48.4		53.6	53.2	S.W. . .	1	K. S. 10 .	
	Noon.	.351	58.6	57.0	49.1	56.9		57.8	58.2	S.W. . .	1	K. S. 10 .	
	3 P. M.	.354	60.2	58 0	50.0	58.5		59.3	58.7	S.W. . .	3	K. S. 10 .	
	6	.374	61.0	57.0	49.1	56.0	57.0	59.0	59.0	S.W. . .	1	K. S. 2 . .	Over Andes.
	9	.404	59.0	49 0	44.6	48 8		50.0	50.0	Westward .	1	0	A few K. over Andes.
	Midn't.	.336	56.5	45.5	43.9	47.1		44.0	44.5	W.N.W. .	1	0	Max. temp., 68°.0; min., 59°.5.
30	6 A. M.	.310	54.0	42.5	40.0	42.8	44.0	43.0	42.5	Calm . .	0	0	Min. sky for night, 47°.6.
	9	.270	56.0	54.0	50.9	58.1	56.0	54.0	54.0	W.N.W. .	1	0	
	Noon.	.216	59.5	61.5	51.8	63.9	64.0	60.5	60.5	W.S.W. .	1	0	
	3 P. M.	.174	62.5	66.6	56.3	71.0	71.0	65.6	65.0	W.S.W. .	1	0	
	6												
	9	.164	62.2	60.5	50.0	57.9		62.2	61.6	S.W. . .	1	0	
	Midn't.	.146	60.0	52.5	45.5	51.3		54.8	54.5	S'd and E'd.	1	0	Max. temp., 65°.8; min., 41°.0.
31	6 A. M.	.100	56.7	49.9	45.5	49.7	50.8	50.2	50.0	N'd and E'd	Airs.	0	
	9	.128	58.8	62.7	57.2	67.7	64.6	62.5	62.0	Calm . .	0	C. S. 3 . .	
	Noon.	.132	63.8	69.5	58.1	73.4	72.6	67.4	66.4	S.W. . .	2	C. S. 3 . .	
	3 P. M.	.126	67.4	75.0	59.7	79.3	77.8	72.2	71.0	S.W. . .	1	0	
	6	.142	68.3	72.0	59.2	73.8	69 0	71.0	70.4	S.W. . .	3	0	
	9	.162	66.5	62.0	56.3	63.9		62.5	62.3	S.W. . .	1	0	
	Midn't	28.170	65.0	57.0	54.0	59.4		58.5	58.0	Northward .	1	0	Max. temp., 73°.0; min., 46°.5.

NOVEMBER, 1850.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register.			Direction.	Force.		
							Sky.	Max.	Min.				
		Inches.	°	°	°	°	°	°	°				
1	6 A. M.	28.138	61.0	53.0	49.5	52.9	53.0	54.0	54.0	Calm . .	0	0	Min. sky for night, 54°.0.
	9	.134	63.5	65.0	59.9	68.9	67.5	65.3	65.0	Calm . .	0	0	
	Noon.	.102	67.3	74.0	62.8	76.9		71.5	70.5	S.W. . .	1	0	
	3 P. M.	.076	70.0	72.5	65.5		78.0	74.2	73.0	S.W. . .	3	0	
	6	.114	72.0	73.0	58.5	72.3	73.0	72.8	72.0	S.W. . .	3	0	K. S. over Andes.
	9	.140	67.0	63.0	51.8	61.7		64.1	63.9	S. eastward	1	0	
	Midn't.	.132	65.3	60.0	48.6	59.4		60.0	59.5	Calm . .	0	0	Max. temp., 74°.8; min., 52°.0.
2	6 A. M.	.108	61.0	54.0	51.3	54.9	55.2	55.4	55.0	Calm . .	0	0	
	9	.150	63.0	65.0	54.7	65.2	67.5	66.8	65 0	W.S.W. .	2	0	C. S. over Andes.
	Noon.	.166	67.0	73.4	53.7	72.9	73.0	69.0	68.0	W.S.W. .	2	0	C. & C. S. over Andes.
	3 P. M.	.156	69.6	73.5	55.5	70.5	73.2	73.9	73.9	W.S.W. .	5	C. & C. S. 3	
	6	.198	65.5	62.8	50.9	60.6		63.0	62.9	S.W. . .	3	K. & C. S. 4	
	9	.222	62.0	53.0	47.6	53.5		54.3	54 0	S. eastward	1	C. K. 1 . .	Over Andes.
	Midn't.	28.202	60.3	48.0	44.6	49.5		51.0	50.5	S.E. . . .	2	C. 2 . . .	Max. temp., 70°.9; min., 50°.5.

NOVEMBER, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Register. Max.	Register. Min.	Direction.	Force.		
		Inches.	•	•	•	•	•	•	•				
3	6 A. M.	28.156	56.0	46.0	44.1	47.2		47.2	48.0	Calm . .	0	C. 7 . . .	
	9	.138	59.5	64.0	55.4	63.5		66.0	66.0	Westward .	1	C. 8 . . .	
	Noon.	.122	63.0	74.0	58.3	71.4		70.7	69.7	W.S.W. .	2	C. 8 . . .	
	3 P. M.	.094	67.0	75.0	59.4	73.8		74.3	74.0	W.S.W. .	3	C. S. 9 . .	
	6	.116	61.5	67.5	55.2	66.2		67.7	67.5	S.W. . .	3	K.S.C.K.&C.8	
	9	.180	64 0	62.0	54.3	60.8		63.2	63.0	Calm . .	0	C. K. 9 . .	Scattered about.
	Midn't.	.100	63.0	57.5	53.1	57.6		60.2	60.0	N.N.E. . .	1	C. 3 . . .	Max. temp., 75°.0; min., 46°.0.
4	6 A. M.	.108	60.0	52.0	49.1	52.2	53.6	53.3	53.0	N'd and E'd	1	C.S.&K.S. 3	
	9	.162	62.0	66.3	55.9	65.5	65.0	67.0	66.8	Westward .	2	C.S.&K.S. 4	
	Noon.	.150	64.0	68.6	57.2	66.2	69.3	68.2	69.0	W.S.W. .	2	C. S. 2 . .	
	3 P. M.	.162	68.0	70.8	57.9	70.2	70.6	71.6	71.0	S.W. . .	4	0	K. S. over Andes.
	6	.170	66.5	64.5	54.3	60.8	64.0	65.5	65.0	S.W. . .	2	0	
	9	.190	60.0	53.0	49.0	53.6		55.2	55.0	Southward .	Airs.	0	
	Midn't.	.152	60.2	50.2	48.0	51.5		53.5	53.5	Calm . .	0	0	Max. temp., 72°.8; min., 51°.0.
5	6 A. M.	.116	58.0	50.0	47.2	50.0		48.0	49.0	Westward .	1	K.S. 10 . .	
	9	.120	58.0	63.5	55.2	61.2		63.5	64.0	Westward .	1	C.K. 8 . .	Clear to westward.
	Noon.	.112	63.0	69.5	59.0	69.5	69.0	69.0	68.2	S.W. . .	2	C. 2 . . .	To the eastward.
	3 P. M.	.062	66.5	75.0	59.7	73.6	74.0	74.2	74.2	S.W. . .	2	C. 1 . . .	Over Andes.
	6	.074	66.5	67.7	57.6	66.6				S.W. . .	2	C. K. 9 . .	
	9	.080	63.7	54.0	51.1	55 4		56.5	56.0	S.W. . .	1	C. 5 . . .	Scattered about.
	Midn't.	.084	61.0	50.5	49.1	51.8		53.0	52.0	S.W. . .	2	C. S. 10 . .	Max. temp., 76°.8; min., 47°.5.
6	6 A. M.	.174	58.2	51.8	49.5	54.0		54.0	53.0	S.W. . .	1	K. 10 . .	
	9	.208	58.5	57.5	52.5	56.5		59.6	58.5	S.W. . .	1	K. & K. S. 10	
	Noon.	.204	61.0	65.0	54.5	62.2		67.9	67.8	S.W. . .	1	K. & K. S. 8	
	3 P. M.	.176	62.0	66.5	55.6	65.1		69.0	69.4	S.E. . . .	2	K. S. 2 . .	
	6	.156	63.4	62.3	54.0	60.6		63.3	63.3	S.S.W. . .	2	K. & K. S. 1	Over mountains.
	9	.155	62.0	54.5	50.9	54 9		56.5	55.5	S. westward	1	0	
	Midn't.	.130	61.0	51.5	47.6	50.9		54.0	54.0	Calm . .	0	0	Max. temp., 70°.0; min., 51°.5.
7	6 A. M.	.140	57.0	49.0	46.4	48.1	49.5	48.5	49.0	Calm . .	0	C. S. 1 . .	To S. westward.
	9	.140	60.0	58.5	53.6	58.5	61.0	59.5	59.0	N. eastward	1	0	
	Noon.	.134	63.0	70.0	58.7	68.9	68.0	69.0	68.2	W.S.W'd .	2	0	
	3 P. M.	.122	65.7	72.5	59.4	71.4		73.2	72.9	W.S.W'd .	2	0	
	6	.175	60.7	64.8	55.6	63.0	64.2	64.6	64.7	S.S.W. . .	3	0	
	9	.140	63.0	53.0	49.0	54.0		55.0	54.5	S.S.W'd .	2	0	
	Midn't.	.104	61.0	52.1	48.1	52.0		54.2	54.0	N.W. . .	1	0	Max. temp., 74°.0; min., 45°.5.
8	6 A. M.												
	9	.092	59.4	59.5	53.1	59.0		63.0	62.3	E.S.E. . .	1	K. S. 5 . .	At 11 P. M., sharp lightning to eastward
	Noon.	.066	62 5	68.9	57.9	67.1	68.0	70.6	70.0	W.S.W. .	1	0	and southeastward.
	3 P. M.	.039	66.4	72.0	58.5	69.8	71.2	72.3	72.2	W.S.W. .	2	K. 1 . . .	Over mountains.
	6	.028	62.0	66.2	55.4	63.9	65.5	66.8	66.0	W.S.W. .	2	C. K. 1 . .	
	9	.041	61.5	56.5	50.9	55.9		57.5	57.0	Southward .	1	C. 1 . . .	To the W. N. westward.
	Midn't.	.052	57.5	51.0	47.2	49.5		51.0	51.5	S. eastward	2	C. & K. S. 10	Max. temp., 74°.0; min., 48°.0.
9	6 A. M.	.112	60.0	54.0	50.4	53.4		55.0	55.0	Southward .	1	C. S. 10 . .	Clouds very low on mountains. At
	9	.118	60.0	61.0	52.9	59.4		63.0	62.0	W.S.W'd .	2	K. S. 8 . .	[0h. 45m. P. M., commenced raining;
	Noon.	.170	62.0	63.0	52.5	62.6		63.0	62.3	S. westward	4	K. S. 10 .	[ceased about 5 P. M.; quantity of
	3 P. M.	.230	61.0	56.0	51.3	54.9		56.2	56.0	N. eastward	1	N. 10 . .	Raining lightly. [rain, 0.580 in.
	6	.256	62.5	52.0	47.6	51.8		53.0	53.0	Eastward .	2	K. S. 10 .	
	9	.252	62.0	51.0	48.6	52.2		53.0	53.0	W.S.W. .	1	K. S. 9 . .	
	Midn't.	28.229	59.0	49.5	46.6	48.4		50.5	50.5	Calm . .	0	C. 1 . . .	Max. temp., 68°.0; min., 50°.5.

NOVEMBER, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Max.	Min.	Direction.	Force.		
		Inches.	°	°	°	°	°	°	°				
10	6 A. M.	28.252	55.4	46.8	42.3	46.6		47.0	47.5	Calm . .	0	0	
	9	.286	58.0	60.0	54.7	60.1		60.4	61.0	W.S.W. .	1	0	
	Noon.	276	60.3	65.0	55 2	64.6		67.5	67.0	W.S.W. .	1	0	K. over Andes.
	3 P. M.	.258	62.8	70.5	56.7	69.1		72.9	72.2	W.S.W. .	1	K. 2 . . .	Do.
	6	.256	63.5	65.0	55.9	63.9		66.6	65.4	W.S.W. .	1	K. 2 . . .	Do.
	9	.280	61.0	55.0	49.7	55.2		56.0	55.6	W.S.W. .	1	K. 0.5 . .	
	Midn't.	.254	60.0	51.0	48.1	51.8		51.5	51.5	Northward .	Airs.	0	Max. temp., 73°.5; min., 45°.1.
11	6 A. M.	.224	57.0	48.0	47.0	49.1		48.5	49.0	Northward .	1	C. S. 3 . .	
	9	.216	59.0	64.8	55.9	63.5		66.1	66.2	W.S.W. .	1	K. & C. S. 2	K. over Andes.
	Noon.	.202	61.5	68.0	56.9	66.4		69.5	68.0	W.S.W. .	2	K. 5 . . .	
	3 P. M.	.176	63.5	71.0	56.9	69.5		71.0	70.5	S.W. . .	3	K. S. 4 . .	
	6	.182	64.0	66.5	54.3	65.7		67.2	66.5	S.W. . .	1	C. S. 1 . .	
	9	.192	61.5	55.6	50.0	55.9		57.0	56.6	S.W. . .	Airs.	0	C. S. over Andes. [the eastward.
	Midn't.	.186	57.5	52.0	47.6	52.2		53.0	52.5	S. westward	1	C. 2 . . .	Max. temp., 75°.0; min., 52°.5. To
12	6 A. M.	.204	57.0	48.6	47.5	51.3		49.0	49.4	N'd and W'd	1	K. & K. S. 6	
	9	.232	57.3	59.8	50.4	57.9		61.0	60.8	N'd and W'd	1	K. & C. S. 5	
	Noon.	.252	60.0	62.2	51.8	61.9		62.5	62.2	Southward .	2	K. & C. S. 5	
	3 P. M.	.224	61.2	66.5	58.3	64.9		67.9	67.0	Southward .	1	K. & K. S. 4	
	6	.232	61.3	59.8	48.1	59.7		61.2	60.9	Westward .	2	K. & K. S. 6	
	9	.270	59.0	52.5	43.7	53.1		54.0	53.0	Westward .	1	K. & K. S. 5	
	Midn't.	.266	58.0	49.9	42.6	50.2	45.5	51.2	51.2	Westward .	1	K. & K. S. 9	Max. temp., 68°.2; min., 46°.9.
13	6 A. M.	.286	54.0	43.5	41.5	44.6		44.5	45.0	Southward .	1	C. K. 3 . .	To N. eastward.
	9	.271	56.0	57.0	48.6	58.1		56.0	56.0	N. westward	1	0	
	Noon.	.250	59.0	65.0	50.6	63.7		63.5	63.0	W.S.W'd .	1	0	A few scattered K. over Andes.
	3 P. M.	.208	62.0	69.7	52.5	68.4		71.2	71.0	S. eastward.	1	0	Do. do.
	6	.212	63.4	66.7	54.3	69.1		69.2	69.2	S.W. . .	2	0	
	9	.216	62.0	55.5	48.1	57.6		61.0	60.2	S.W. . .	1	0	
	Midn't.	.158	60.0	55.7	46.2	52.2	39.9	54.6	54.0	S'd and E'd.	1	0	Max. temp., 72°.0; min., 42°.5.
14	6 A. M.	.112	55.6	54.0	47.2	52.7		55.7	55.0	Calm . .	0	0	
	9	.116	60.0	69.0	55.9	68.0		65.0	64.5	S'd and W'd	1	0	
	Noon.	.100	64.8	79.6	55.9	75.8		75.6	75.0	S.E. . . .	1	0	
	3 P. M.	.056	68.5	84.5	57.9	82.1		83.4	83.6	Westward .	2	0	
	6	.085	70.4	77.7	58.7	76.3		79.0	79.5	W.S.W. . .	1	0	
	9	.108	67.6	63.7	56.1	65.3		68.3	67.7	N.E. . . .	Air.	0	
	Midn't.	.096	65.0	59.0	53.6	60.8	39.8	63.5	63.0	N.E. . . .	1	0	Max. temp., 83°.5; min., 42°.5.
15	6 A. M.	.080	61.0	56.0	54.5	64.4		56.2	56.0	Calm . .	0	0	Wet and dry thermometers in the sun.
	9	.110	64.6	71.6	58.7	71.4		70.1	69.0	Northward .	Airs.	0	
	Noon.	.112	68.0	80.0	62.2	78.0		78.7	78.3	Westward .	2	0	A bank of S. rising to the S. W'd.
	3 P. M.	.123	70.4	78.4	59.7	76.8		77.7	77.7	S.W. . . .	2	S. & K. S. 9	
	6	.128	70.5	72.5	59.9	70.8		72.7	72.2	W.S.W'd .	2	C. S. 9 . .	
	9	.156	67.3	63.0	56.5	63.5		64.0	63.5	W.S.W'd .	1	0	C. S. over Andes.
	Midn't.	.146	57.5	56.7	54.5	60.1	50.0	58.2	58.0	N.W. . .	2	0	Max. temp., 81°.0; min., 53°.5.
16	6 A. M.	.128	63.0	59.2	54.7	60.1		60.5	60.0	Calm . .	0	0	
	9	.122	64.4	72.0	61.0	72.0		71.6	71.0	Calm . .	0	0	
	Noon.	.116	67.9	78.0	59.7	75.4		77.4	78.0	Southward .	2	0	
	3 P. M.	.094	70.3	80.5	61.7			80.9	80.4	S.W. . .	3	0	
	6	.097	70.7	74.4	58.3	73.6		76.3	76.7	S.W. . .	3	0	
	9	.119	68.0	65.2	55.6	66.0		67.5	67.6	S.S.W. . .	2	C. & C. S. 4	
	Midn't.	28.108	66.0	60.2	54.9	62.4	51.0	65.0	64.0	N.W. . .	1	0	Max. temp., 81°.3; min., 54°.2.

NOVEMBER, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Register. Max.	Register. Min.	Direction.	Force.		
		Inches.	°	°	°	°	°	°	°				
17	6 A. M.	28.132	63.5	57.0	56.7	67.3							Psychrometer in the sun.
	9	.166	65.5	71.2	57.4	69.3		71.6	71.3	Westward .	2	0	Slight C.
	Noon.	.170	67.5	75.0	59.2	73.4		76.7	77.0	S. W'd . .	2	C. & K. 1 .	A few K. over Andes.
	3 P. M.	.180	70.0	77.5	56.3	75.8		78.4	78.7	S.W. . .	4	C.S.& K. 2 .	Over Andes.
	6	.218	69.2	70.0	56.1	69.8		71.0	71.1	S.W. . .	3	K. & K. S. 1	Over mountains to eastward.
	9	.246	66.0	61.3	52.5	61.2		61.3	61.0	Southward .	1	0	
	Midn't.	.236	63.5	57.1	51.1	57.4	51.0	58.8	56.5	N'd and W'd	1	0	Max. temp., 78°.8; min., 56°.0.
18	6 A. M.	.248	62.0	55.0	50.2	54.3		54.0	54.0	S'd and E'd	Air.	0	
	9	.232	64.4	68.7	56.7	68.0		70.0	70.0	N. and E. .	1	0	
	Noon.	.210	68.2	79.3	60.3	75.6		76.6	76.0	Southward .	1	0	Slight C. over Andes.
	3 P. M.	.183	71.4	81.5	59.0	79.5		80.4	80.6	S.S.W. . .	4	0	C. and K. over mountains to W'd.
	6	.179	73.0	76.5	54.3	75.0		76.3	76 4	S.W. . .	2	0	K. over mountains to W'd.
	9	.174	69.3	66.0	53.4	64.4		67.0	66.8	N. and E. .	1	0	
	Midn't.	.140	67.2	61.5	49.7	60.8	49.2	62.1	61.5	N.W. . .	2	0	Max. temp., 81°.3; min., 51°.0.
19	6 A. .	.100	61.0	56.3	49.5	56.3		54.8	54.8	Calm . .	0	0	
	9	.107	67.0	75.0	59.0	74.0		72.6	72.0	Calm . .	0	S. & K. S. 2	Smoky.
	Noon.	.108	70.0	82.5	58.5	82.3		79.8	79.4	S.W. . .	2	C.K.S.&C.S.5	
	3 P. M.	.094	73.0	85.3		83.0		83 3	83.2	W.S.W. .	3	C.K.S.&C.S.7	
	6	.103	72.3	73.0	57.4	71.8		74.0	73.6	W.S.W. .	2	C.K. & C.S. 7	
	9	.097	68.0	63.7	54.3	61.7		64.7	64.7	E. . . .	2	K. & C. K. 8	
	Midn't.	.070	66.0	61.8	52.0	61.5	48.0	62.0	61.6	E. . . .	1	C. S. & K.S. 6	Max. temp., 82°.4; min., 51°.6.
20	6 A. M.	.047	62.5	53.3	49.1	52.7		54.2	54.5	N. E'd . .	1	C.C.S.&C.K.4	
	9	.056	65.6	70.6	57.9	70.8		69.5	70.0	Southward .	1	C.C.S.&C.K.6	
	Noon.	.065	68.7	66.7	60.6	75.3		75.7	75.6	N.W. . .	3	C. C. S.& K. 5	
	3 P. M.	.070	70.0	74.7	58.1	73.8		75.7	76.5	S.W. . .	3	K. & C. S. 4	
	6	.080	70.0	69.5	56.5	68.2		70.6	70.8	S.W. . .	3	C.C.S. & K. 3	
	9	.122	67.4	58.7	51.8	58.5		59.4	59.7	S.W. . .	2	S. & K. S. 1	
	Midn't.	.108	64.4	52.5	48.6	52.2	50.0	53.1	52.5	N'd and W'd	1	0	Max. temp, 76°.8; min., 52°.5.
21	6 A. M.	.068	65.0	53.7	49.7	53.6		55.2	55.2	Northward .	1	Fog 10 . .	
	9	.068	63.2	59.3	53.6	59.9		60.2	60.0	S.W. . .	2	K. 1 . . .	Around the Andes.
	Noon.	.050	66.5	71.5	59.7	70.5		70.1	69.5	S.W. . .	2	0	K. over Andes.
	3 P. M.	.035	69.5	76.0	60.8	74.5		76.0	76.1	S.W. . .	3	K. 1 . . .	Do.
	6	.040	69.0	67.8	58.1	67.1		68.7	68.7	S.W. . .	3	K. 1 . . .	Do.
	9	.062	67.2	58.5	52.7	58.5		59.2	59.2	S.W. . .	2	0	[min., 50°.0.
	Midn't.	.038	66.8	54.9	49.7	54.5	47.5	55.2	55.0	W.S.W. .	1	C. S. 9 . .	Partial lunar halo. Max. temp., 77°.0;
22	6 A. M.	.024	66.5	54.0	50.6	53.6		55.7	55.5	N.E'd . .	1	Fog 10 . .	
	9	.036	64 0	56.5	52.5	56.5		57.7	57.6	S.W. . .	1	Fog 10 . .	
	Noon.	.060	65.4	66.8	57.4	65.3		65.8	65.2	S.W. . .	2	K. 8. . . .	
	3 P. M.	.075	65.3	66.0	56.9	64.9		67.6	68.2	S.W. . .	3	K. & K. S. 9	
	6	.106	66.0	60.2	54.0	59.9		61.4	62.0	S.W. . .	4	K. & K.S. 10	
	9	.110	64.4	56.5	52.7	57.2		58.6	58.6	S.W. . .	2	K. 10 . .	
	Midn't.	.074	63.0	54.1	51.3	55.6	48.6	54.5	54.3	S.W. . .	2	K. S. 10 . .	Max. temp., 71°.2; min., 53°.0.
23	6 A. M.	.100	61.0	57.0	52.0	56.5		58.2	58.0	S.W'd . .	1	Fog 10 . .	
	9	.107	62.2	60.3	55.9	62.2		61.3	60.8	N. and E. .	1	K. & K. S. 10	
	Noon.	.122	65.0	68.8	59.2	69.3		68.6	67.0	Calm . .	0	C. K. 6 . .	
	3 P. M.	.109	67.0	71.0	57.9	70.0		72.0	72.0	S.W. . .	3	C. K. 4 . .	
	6	.098	67.2	67.0	55.2	65 3		68.0	67.7	S.W. . .	2	C. & K. S. 4	
	9	.115	63.8	57.0	50.6	54.9		57.8	57.8	S.W. . .	2	0	
	Midn't.	28.096	62.0	53.5	51 8	54.5	49.5	54.0	54.0	S.E. . .	1	K. S. 10 . .	Max. temp., 72°.7; min., 54°.0.

NOVEMBER, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Register. Max.	Register. Min.	Direction.	Force.		
		Inches.	°	°	°	°	°	°	°				
24	6 A. M.	28.086	60.4	52.9	49.1	52.2		53.2	53.2	N.E. . .	1	C. K. & S. 4	
	9	.098	63.0	66.5	56.9	69.3		66.0	65.2	S.W. . .	1	C. S. 2 . .	
	Noon.	.096	65.5	73.2	59.0	72.0		73.5	73.2	W.S.W. .	2	C. K. & S. 5	
	3 P. M.	.074	68.0	75.7	59.2	74.3		74.7	74 2	W.S.W. .	3	K. S. 8 . .	
	6	.047	69.0	73.7	61.7	72.9		74.1	74.0	S.W. . .	3	K. & C. S. 6	
	9	.063	66.0	62.5	54.9	62.2		63.7	63.0	S.W. . .	2	K. & K. S. 8	
	Midn't.	.100	66.0	57.0	52.0	55.2	47.9	58.7	58.0	S.W. . .	2	K. & K. S. 6	Max. temp., 75°.0; min., 49°.9.
25	6 A. M.	.242	65.6	53.8	51.3	53.8		55.0	54.8	Southward .	1	Rain . . .	Quantity of rain at noon 4.02 *in.* The rain, which lasted from 3½ till 11½ A. M., was preceded by heavy thunder and lightning, very rarely known in the valley. J. M. G.
	9	.316	65.3	53.3	51.3	53.1		54.8	55.0	N'd and E'd	1	Rain . . .	
	Noon.	.338	67.8	56.0	51.8	56.3		56.5	56.6	S. westward	1	K. 10 . .	
	3 P. M.	.267	66.5	64.0	54.9	63.0		64.1	63.4	N.W. . .	3	K. S. 7 . .	
	6	.260	66.4	64.4	60.3	64.6		66.0	66.2	S.W. . .	1	C. S. 2 . .	
	9	.262	64.0	55.0	52.5	54.9		54.8	54.8	Southward .	1	0	
	Midn't.	.212	62.1	52.5	49.7	51.5	49.9	52.5	51.2	N.E. . .	1	0	Max. temp., 67°.8; min., 59°.8.
26	6 A. M.	.142	58.0	53.5	50.6	52.7		53.0	52.3	Calm . .	0	0	
	9	.137	62.3	64.8	58.5	65.3		64.4	64.0	Southward .	Air.	0	Smoky.
	Noon	.121	65.6	72.5	61.5	71.4		71.2	70.7	Calm . .	0	0	Do.
	3 P. M.	.096	69.6	79.9	60.1	78.1		77.4	77.6	Calm . .	0	0	
	6	.090	70.5	75.7	62.4	77.1		76.5	77.5	S. westward	Air.	C. 1 . . .	K. on Andes.
	9	.090	69.0	64.3	58.5	64.1		64.6	64.0	Calm . .	0	0	
	Midn't.	.090	67.5	60.5	55.9	60.3	44.6	60.2	60.0	Calm . .	0	0	Max. temp., 79°.2; min., 46°.5.
27	6 A. M.	.086	64.2	60.7	54.9	59 4		59.5	59.4	Calm . .	0	C. 2 . . .	
	9	.084	65.7	68.6	59.4	66.4		68.5	67.3	Calm . .	0	C. 1 . . .	
	Noon.	.085	68.0	73.7	62.6	73.2		73.3	72.5	S. westward	3	K. S. 2 . .	Mostly over Andes.
	3 P. M.	.102	68.6	69.6	60.1	69.1		70.2	70.2	S.W. . .	4	C. K. 3 . .	
	6	.143	65.8	62.6	55.6	61.7		63.8	64.6	S.W. . .	3	K. S. 10 .	
	9	.146	64.5	59.5	53.8	59.0		60.5	60.0	S.W. . .	3	K. S. 10 .	At 10 P. M. a very light mist falling.
	Midn't.	.134	64.0	59.0	53.6	58.1	53.0	58.7	58.5	S.S.E. . .	1	C. S. 10 . .	Max. temp., 75°.0; min., 54.°0.
28	6 A. M.	.129	64.5	59.2	54.3	58.1		60.5	59.8	Calm . .	0	K. 10 . .	Late.
	9	.122	63.7	60.0	55.9	60.3		61.2	60.7	Southward .	Airs.	K. S. 10 . .	
	Noon.	.130	64.9	67.0	58.1	66.4		66.8	66.4	S. westward	2	K. 5 . . .	
	3 P. M.	.105	66.5	70.2	58.7	69.1		70.0	69.3	S.W. . .	1	K. 2 . . .	Over Andes.
	6	.092	67.2	67.7	57.6	66.6		68.2	68.0	W.S.W. .	2	K. 1 . . .	Do.
	9	.105	64.0	58.9	52.7	57.9		58.3	58.2	N. eastward	1	0	
	Midn't.	.090	60.2	54.5	50.0	53.6	51.8	53.3	54.0	W.S.W. .	3	0	Max. temp., 72°.3; min., 52°.7.
29	6 A. M.	.127	62.0	55.5	51.3	54.3		55.5	55.0	Calm . .	0	Fog 10 . .	
	9	.157	62.3	55.0	52.2	55.4		56.2	56.0	Southward .	Airs.	K. 10 . .	
	Noon.	.167	62.2	59.5	54.0	59.4		60.5	60.0	N. eastward	1	K. 10 . .	
	3 P. M.	.146	63.7	65.0	56.7	64.6		65.2	64.6	S.E. . .	2	K. 4 . . .	
	6												
	9	.168	63.0	56.7	51.5	56.7		57.8	57.8	S.E. . .	3	K. 10 . .	
	Midn't.	.168	62.5	55.3	51.3	55.9	51.7	57.6	57.7	S.E. . .	3	K. 10 . .	Max. temp., 68°.4; min., 51°.3.
30*	6 A. M.	.207	61.0	56.7	52.0	56.9		57.6	57.5	Calm . .	0	K. S. 10 .	
	9	.228	62.2	64.6	56.7	64.9		64.3	63.7	N.E. . .	1	K. 9 . . .	
	Noon.	.180	66.0	73.3	58.3	72.9		73.8	72.2	S.W. . .	4	K. 7 . . .	
	3 P. M.	.192	66.0	66.3	55.4	60.1		65.8	67.0	N.E. . .	4	K. & N. 8 .	
	6	.179	65.0	63.3	56.9	62.4		64.0	63.6	Calm . .	0	C. K. 5 . .	Thunder-storm.
	9	.179	64.3	58.2	53.8	57.6		57.3	57.0	S.W. . .	1	K. 1 . . .	Over Andes.
	Midn't.	28.151	62.4	54.7	50.6	62.0	49.8	53.2	53.0	N.E. . .	1	K. S. 1 . .	Max. temp., 74°.8; min., 52°.6.

* About 3*h.* 30*m.* P. M. a thunder-storm commenced, accompanied with faint lightning, generally to the southeastward, and varying from half a mile to two miles in distance. About 4*h.* 15*m.* the lightning had ceased, but rain still continued, the sun shining, with cumuli and clear blue sky to the westward. Quantity of rain that fell 0.158 *in.*

N. B. The lightning above mentioned struck a house in the city, an accident never before experienced here.

DECEMBER, 1850.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Register. Max.	Register. Min.	Direction.	Force.		
		Inches.	°	°	°	°	°	°	°				
1	6 A. M.	28.105	59.4	53.3	50.6	51.8		60.0	60.0	N.E. . . .	Airs.	C. & K. S. 7	
	9	.111	62.0	68.0	57.9	65.5		65.7	65.0	Calm . .	0	C.K. & K.S. 9	
	Noon.	.104	64.5	72.1	60.3	70.8		70.8	70.2	Calm . .	0	K. & C. K. 8	
	3 P. M.	.096	67.0	73.2	59.9	72.5		72.5	72.0	S.W. . .	2	C.K. & K.S. 10	
	6	.104	67.0	69.7	59.4	68.0		69.8	69.3	S.W. . .	3	K. S. 10 . .	
	9	.110	65.0	62.5	55.6	61.0		64.4	64.2	Eastward .	2	K. S. 10 . .	
	Midn't.	.058	64.1	60.7	54.9	59.4	48.0	63.0	61.9	S. eastward.	1	K. S. 10 . .	Max. temp., 68°.5; min., 48°.0.
2	6 A. M.	.083	63.2	59.2	54.5	58.1		59.3	59.0	S.W. . .	1	C.S. & K.S.8	Frequent flashes of lightning over the Cordilleras to the S. W'd during the night.
	9	.116	64.5	69.7	59.4	68.7		68.5	67.8	S.W. . .	1	C. & K. S. 8	
	Noon.	.093	67.2	75.0	61.0	75.0		74.6	73.8	S.W. . .	3	K. K.S. & C. 8	
	3 P. M.	.106	68.6	70.0	59.2	68.7		71.0	70.8	S.W. . .	5	C.S. & K.S. 8	
	6	.094	66.6	66.8	57.6	68.0		67.5	67.6	S.W. . .	2	C. & K. S. 6	
	9	.102	64.0	59.5	53.8	59.0		59.4	59.0	S.W. . .	1	K. S. 3 . .	
	Midn't.	.091	66.4	56.8	52.2	56.3	53.5	56.2	56.0	S.W. . .	1	K. S. 5 . .	Max. temp., 77°.7; min., lost.
3	6 A. M.	.142	57.7	56.0	52.7	55.4		57.7	57.6	Southward .	1	Fog. 10 . .	
	9	.170	59.3	58.4	55.4	60.8		58.8	58.4	Southward .	1	K. S. 10 . .	
	Noon.	.180	61.8	63.1	55.4	62.6		63.0	62.6	S. westward	1	K. 8 . . .	
	3 P. M.	.159	64.0	68.2	56.5	66.6		68.0	67.5	S. westward	4	K. 8 . . .	
	6	.181	64.5	64.0	54.5	64.1		66.3	66.0	S.W. . .	1	K. 8 . . .	
	9	.213	62.0	58.5	51.3	57.9		58.8	58.3	Eastward .	1	K. S. 4 . .	
	Midn't.	.196	59.5	54.5	48.8	53.6	48.7	57.8	57.8	S. eastward.	1	K. S. 1 . .	Max. temp., 69°.; min., 52°.4.
4	6 A. M.	.184	59.5	56.5	50.4	55.2		56.6	56.6	Calm . .	0	C.K. 7 . .	
	9	.170	61.2	64.3	54.7	63.0		63.6	63.3	S.W. . .	1	K. 5 . . .	
	Noon.	.140	68.2	69.2	56.3	68.0		68.7	68.3	S.W. . .	1	K. 4 . . .	
	3 P. M.	.110	66.0	72.7	57.4	74.5		71.7	72.2	S.W. . .	1	K. 3 . . .	
	6	.117	66.0	68.5	56.9	67.1		68.5	68.5	S.W. . .	3	K. 3 . . .	
	9	.156	64.5	59.3	52.2	58.3		58.8	58.2	S. westward	1	0	
	Midn't.	.143	62.5	56.5	50.6	55.9	47.9	54.7	55.2	Calm . .	0	K. S. 2 . .	Max. temp., 72°.5; min., 51°.0.
5	6 A. M.	.130	60.7	55.0	50.6	53.4		54.2	54.5	Calm . .	0	0	
	9	.117	62.3	66.0	57.2	67.3		65.3	64.6	Northward .	Air.	0	Slight K. on Andes.
	Noon.	.105	64.7	71.8	59.0	71.4		71.0	70.2	S.W. . .	4	K. 3 . . .	Around horizon.
	3 P. M.	.109	66.5	74.5	57.9	73.2		74.2	73.6	S.W. . .	2	K. 4 . . .	
	6	.124	67.0	70.8	56.5	69.5		70.4	70.5	W.S.W. .	2	K. 1 . . .	Over Andes.
	9	.144	64.0	59.8	51.8	59.2		59.2	58.8	Calm . .	0	0	K. over Andes.
	Midn't.	.138	61.6	56.5	49.7	56.1	49.0	54.7	57.4	Calm . .	0	0	Max. temp., 76°.5; min., 51°.7.
*6	6 A. M.	.133	58.3	55.0	49.5	53.8		53.5	53.8	Calm . .	0	C. & C. S. 7 .	
	9	.134	61.6	68.2	56.5	68.4		66.3	65.5	N.E. . . .	Air.	C. C. S. & S. 9	
	Noon.	.143	65.0	73.5	58.1	72.3		72.3	72.0	S.W. . .	2	S. & C.S. 10	
	3 P. M.	.146	66.0	71.0	60.1	70.0		70.7	70.2	S.W. . .	2	C. & C.S. 10	
	6	.177	65.5	62.7	55.2	62.4		64.0	63.7	S.W. . .	1	S. & C. S. 9	
	9	.207	63.8	58.4	51.3	57.6		58.5	58.7	Calm . .	0	S. 6 . . .	
	Midn't.	28.202	62.0	55.0	48.8	54.3	49.6	54.0	53.8	S. eastward.	1	S. 5 . . .	Max. temp., 72°.4; min., 48°.8.

* At 6*h*. 40*m*. 3*s*. A. M., a severe earthquake shock, which lasted until 6*h*. 40*m*. 58*s*., accompanied with the usual roaring noise. It was preceded by a premonitory shock of three or four seconds duration. The pendulum of the *new* seismometer was vibrating through more than an inch *after* the *shock* was observed, and seemed to indicate a motion from S.E. or N.W. At 8*h*. 8*m*. 33*s*. A. M., another was felt. It was not violent, but continued some three seconds. At both times the weather was pretty much as at 6 A. M. The first was by far the most violent we have as yet experienced. E. R. S.

DECEMBER, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Register. Max.	Register. Min.	Direction.	Force.		
		Inches.	°	°	°	°	°	°	°				
7	6 A. M.	28.206	60.0	53.8	48.6	53.1		53.0	53.0	N. eastward.	Air.	K.C.K.&K.S.9	
	9	.251	61.2	63.7	54.0	63.3		63.3	62.7	N.E. . .	Air.	K.S.9 . .	
	Noon.	.271	63.4	68.5	59.4	68.4		68.7	68.0	Calm . .	0	C. & K. S. 8	
	3 P. M.	.267	66.8	71.4	54.9	70.9		71.2	70.5	S. westward	2	K. & K. S. 8	
	6	.270	66.5	67.5	53.6	66.4		68.0	67.5	Calm . .	0	K. &. C. K. 7	
	9	.269	64.7	62.3	53.6	60 8		63.6	63.2	Calm . .	0	K. & C. K. 6	
	Midn't.	.222	63.7	57.5	50.4	54.7	47.4	57.3	57.0	Calm . .	0	K. & C. K. 3	Max. temp., 76°.6; min., 55°.2.
8	6 A. M.	.209	60.0	54.5	50.0	53.6		54.0	54.0	Calm . .	0	0	
	9	.206	63.0	68.2	54.9	68.7		67.4	66.7	Calm . .	0	0	
	Noon.	.204	66.0	75.0	59.0	73.8		75.0	74.5	S.W. . .	2	0	K. over Andes.
	3 P. M.	.189	68.5	79.5		78.3		79.2	79.0	S.W. . .	2 to 4	K. 1 . . .	Do.
	6	.193	70.3	74.5	59.7	72.7		74.4	74.6	S.W. . .	2	K. 4 . . .	
	9	.225	65.4	69.3	53.1	61.5		62.3	61.7	Southward .	1	0	
	Midn't.	.204	63.0	58.5	50.9	57.4	48.0	56.7	56.5	Eastward .	1	0	K. over Andes. Max. temp., 80°.2; min., 50°.5.
9	6 A. M.	.252	60.0	55.5	49.1	54.0		54.6	55.0	Calm . .	0	C. K. 3 . .	
	9	.256	63.0	66.5	55.4	66.6		66.0	65.0	S. westward	1	C. K. 2 . .	Scattered.
	Noon.	.286	66.6	72.3	58.7	70.9		70.8	70.0	Southward .	1	K. &. K. S. 5	
	3 P. M.	.282	68.6	75.0	59.0	73.2		73.5	72.9	S.W. . .	2	C. S. 3 . .	K. over Andes.
	6	.276	69.1	73.0	59.0	71.0		73.0	72.8	S.W. . .	1	0	C. S. about the horizon.
	9	.290	66.6	62.0	52.0	61.3		64.2	63.2	Calm . .	0	0	
	Midn't.	.248	64.0	59.4	53.4	58.3	48.2	61.7	61.2	Calm . .	0	0	Max. temp., 69°.5; min., 51°.5.
10	6 A. M.	.229	66.0	65.8	57.2	68.9		69.6	67.8	Calm . .	0	0	
	9	.200	64.6	71.0	61.7	71.6		70.0	69.4	Calm . .	0	0	Atmosphere smoky.
	Noon.	.202	69.0	76.2	62.6	74.7		75.7	75.6	S.W. . .	1	0	K. over Andes.
	3 P. M.	.182	72.0	82.0	63.5	80.7		81.3	81.0	S.W. . .	1	0	Do.
	6	.163	72.4	76.5	61.7	75.6		77.3	78.0	S.S.W. . .	2	0	Do.
	9	.180	70.2	67.5	57.9	66.4		66.8	66.2	N. eastward.	Air.	0	
	Midn't.	.146	68.5	63.3	55.2	62.6	59.8	63.0	62.4	N. westward	2	0	Max. temp., 80°.7; min., 56°.0.
11	6 A. M.	.109	63.6	60.4	53.8	59.7		69.4	59.4	Calm . .	0	0	
	9	.111	67.3	76.0	62.0	75.6		73.9	73.1	Calm . .	0	S. 1 . . .	
	Noon.	.113	70.7	82.3	62.4	80.3		80.2	79.8	S.W. . .	1	C.K.S.&C.S.4	
	3 P. M.	.106	73.0	86.8	60.1	85.8		84.4	84.8	S.W. . .	2	C.K. & K. S.3	
	6	.126	73.7	81.0	61.5	77.4		80.0	79.5	W.S.W. .	1	0	K. over Andes.
	9	.168	71.5	68.8	56.5	67.7		68.4	67.7	Southward .	1	0	
	Midn't.	.147	70.5	63.5	54.9	62.4	52.4	63.4	63.2	Calm . .	0	0	Max. temp., 84°.6; min., 55°.7.
12	6 A. M.	.147	67.0	62.7	54.5	61.7		62.4	62.3	N. eastward	1	S. & C. S. 1	
	9	.154	73.5	73.5	60.3	73.6		72.4	71.7	Calm . .	0	S. & C. S. 1	
	Noon.	.154	71.5	80.8	65.7	80.3		80.0	79.8	S.W. . .	1	S. & C. S. 1	
	3 P. M.	.158	73.6	83.0	62.4	81.5		82.2	82.3	S.W. . .	3	K. S. 1 . .	
	6	.169	74.0	79.0	62.8	78.0		79.4	79.5	S.W. . .	2	C. K. 3 . .	
	9	.211	72.2	67.7	57.2	66.6		67.2	66.7	Calm . .	0	0	
	Midn't.	.183	70.5	63.4	55.4	62.4	52.7	63.0	62.5	Westward .	1	0	Max. temp., 83°.2; min., 56°.5.
13	6 A. M.	.158	67.0	63.9	56.5	63.3		63.0	62.7	Southward .	Air.	0	
	9	.132	69.2	76.2	63.3	77.1		74.5	73.9	Calm . .	0	0	
	Noon.	.102	72.8	83.0	66.8	82.0		81.2	81.0	S.W. . .	3		
	3 P. M.	.071	79.8	89.4	61.7	88.0		87.7	88.0	S.W. . .	3	0	
	6	.058	81.2	83.7	60.6	82.0		84.0	84.8	S.W. . .	2	0	
	9	.068	76.2	71.5	57.9	70.0		70.3	69.8	N.W. . .	1	0	
	Midn't.	28.043	73.0	68.8	53.6	68.4	52.4	68.7	67.7	N.W. . .	3	0	Max. temp., 88°.2; min., 56°.5.

DECEMBER, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Register. Max.	Register. Min.	Direction.	Force.		
		Inches.	°	°	°	°	°	°	°				
14	6 A. M.	28.036	70.3	64.9	55.6	64.1		64.4	64.2	Calm . .	0	0	
	9	.044	72.5	80.0	62 2	80.0		78.2	77.7	Calm . .	0	0	
	Noon.	.062	77.0	86.8	63.5	86.5		85.0	85.5	S.W. . .	2	0	
	3 P. M.	.058	81.2	86.3	63.9	85.0		85.3	86.0	S.W. . .	4	0	
	6	.067	77.5	76.3	62.2	75.4		77.3	77.5	S.W. . .	5	0	
	9	.096	71.4	67.5	57.9	66.6		67.5	66.8	S.W. . .	1	0	
	Midn't.	.073	68.8	64.5	56.5	63.7	52.4	63.3	62.7	S. eastward	1	0	Max. temp., 86°.4; min., 58°.5.
15	6 A. M.	.124	64.0	61.8	55.9	60.8		63.2	62.8	Calm . .	0	Fog 10 . .	Late.
	9	.152	65.0	62.7	56.7	62.0		62.8	62.6	S. westward	1	K. S. 10 . .	
	Noon.	.146	67.7	70.7	61.0	70.8		76.4	76.2	W.S.W. .	1	K. 6 . . .	
	3 P. M.	.118	70.3	71.8	64.6	71.4		72.5	72.0	W.S.W. .	3	K. & C. K. 5	
	6	.110	68.7	66.5	60.8	65.7		68.5	67.6	S.W. . .	2	K. S. & N. 9	
	9	.120	66.0	64.5	57.4	63.3		65.6	65.0	Eastward .	1	K. 9 . . .	
	Midn't.	.136	64.7	63.0	56.7	62.0	53.0	64.2	63.7	W. . . .	2	K. 10 . .	Max. temp., 72°.4; min., 59°.0.
16	6 A. M.	.229	64.3	60.6	55.4	59.4		61.7	61.1	Calm . .	0	K. & fog 10.	
	9	.236	65.0	64.2	59.0	65.3		64.8	65.2	Calm . .	0	K. S. 10 . .	
	Noon.	.219	67.5	72.3	61.0	70.8		71.6	71.0	S.W. . .	1	C. K. 7 . .	
	3 P. M.	.172	69.7	75.0	63.7	74.3		74.7	74.3	S.W. . .	1	C. K. 6 . .	
	6	.142	71.0	74.8	63.0	76.3		75.1	75.0	S.W. . .	1	K. & C. K. 5	
	9	.162	69.2	66.0	57.4	65.3		66.0	65.5	Southward .	1	K. & C. K. 8	
	Midn't.	.134	67.4	61.7	54.7	61.0	53.0	62.0	61.3	Eastward .	1	K. & C. K. 5	Max. temp., 76°.0; min., 58°.5.
17	6 A. M.	.184	65.0	60.5	52.9	59.7		61.2	61.2	N. eastward	1	K. S. 9 . .	
	9	.211	66.5	70.5	60.3	72.7		70.2	69.5	N. eastward	1	K. & C. S. 7	
	Noon.	.196	69.1	76.3	64.9	75.6		75.6	75.0	S.W. . .	1	K. & C. K. 1	Over Andes.
	3 P. M.	.170	72.0	81.0	63.0	80.0		81.6	82.0	S.W. . .	6	C. K. 5 . .	
	6	.195	73.5	75.1	60.1	74.0		75.9	75.5	S.W. . .	2	K.S. 1 . .	Over Andes.
	9	.208	72.0	67.4	56.3	67.1		68.0	67.2	Southward .	Airs.	C. 1 . . .	
	Midn't.	.156	69.2	60.5	53.6	61.0		61.1	60.5	N.E. . . ,	1	0	Max. temp., 81°.5; min., 54°.5.
18	6 A. M.	.156	67.3	64.7	55.6	63.5		64.3	64.2	Calm . .	0	0	Late.
	9	.152	69.0	74.5	60.8	75.2		73.6	73.0	Calm . .	0	0	
	Noon.	.109	71.8	81.7	64.9	80.3		80.3	80.0	S.W. . .	1	0	Smoky
	3 P. M.	.112	79.0	85.0	71.6	83.5		84.5	85.5	S.W. . .	3	0	K. over Andes.
	6	.086	77.0	80.2	62.8	75.2		77.3	77.7	Calm . .	0	K. S. 1 . .	Taken at 7 P. M.
	9	.100	73.7	70.0	56.7	69.8		72.0	71.7	S. westward	1	0	
	Midn't.	.094	71.4	66.4	57.4	64.6	51.8	68.0	67.7	N.E. . . .	1	0	Max. temp., 85°.2; min., 55°.6.
19	6 A. M.	.123	68.8	71.2	59.9	73.0		73.4	72.5	Calm . .	0	C. K. 1 . .	Rain commenced a few minutes after midnight. (Slight earthquake at 5h. 7m. 15s. P. M.)
	9	.169	71.0	71.3	59.4	71.6		72.4	72.0	S.W. . .	2	K. S. 2 . .	
	Noon.	.164	72.2	76.7	62.2	75.8		76.8	76.7	S.W. . .	2	K. & C. S. 3	
	3 P. M.	.154	74.6	76.6	68.7	75.6		77.5	78.0	S.W. . .	3	K. & C. S. 5	
	6	.162	69.0	69.3	60.8	68.4		70.8	70.0	S.W. by S. .	3	K. & C. S. 10	
	9	.223	64.8	64.2	56.3	63.7		65.5	65.0	S.S.W. . .	4	K. S. 10 . .	
	Midn't.	.206	68.4	62.0	57.2	61.7	54.0	63.0	62.3	S.S.E. . .	1	K. S. 10 .	Max. temp., 80°.4; min., 63°.0.
20	6 A. M.	.232	66.7	60.6	57.9	60.1		62.0	61.7	N. eastward	1	K. S. 8 . .	Quantity of rain that fell (measured at 9 A. M.) 1.340 in.
	9	.210	67.0	67.5	63.5	66.8		67.4	66.7	N. eastward	1	K. 3 . . .	
	Noon.	.187	70.2	72.3	63.3	71.4		72.3	71.6	S.S.W. . .	6	K. 5 . . .	
	3 P. M.	.171	71.5	73.8	63.7	72.9		74.0	73.8	S.W. . .	6	K. 2 . . .	
	6	.164	72.0	72.5	63.5	71.8		73.0	72.7	S.W. . .	2	K. S. 2 . .	
	9	.179	69.4	66.4	60.6	65.7		66.3	65.7	Eastward .	2	K. S. 3 . .	
	Midn't.	28.156	67.0	62.5	57.6	61.7	55.7	61.6	61.0	Calm . .	0	0	Max. temp., 79°.6; min., 59°.5.

DECEMBER, 1830—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register.			Direction.	Force.		
							Sky.	Max.	Min.				
		Inches.	°	°	°	°	°	°	°				
21*	6 A. M.	28.164	65.6	61.3	56.3	59.9		62.6	62.5	Calm . .	0	K. S. 10. .	
	9	.146	67.4	69.1	63.5	71.0		69.0	68.5	Calm . .	0	K. S. 1 . .	On the Andes.
	Noon.	.127	71.4	75.7	68.2	75.4		75.0	74.5	S.W. . .	1	K. 1 . . .	
	3 P. M.	.102	73.2	80.2	66.4	78.8		80.0	80.4	S.W. . .	4	K. 1 . . .	On the Andes.
	6	.092	73.0	76.5	59.9	74.7		76.8	76.5	S.W. . .	2	K. & C. S. 2	
	9	.144	70.5	66.5	57.9	66.0		66.5	55.8	S.S.W. . .	1	K. S. 1 . .	
	Midn't.	.118	69.0	62.3	54.3	61.7	53.4	62.0	61.6	Eastward .	1	K. S. 1 . .	Max. temp., 80°.7; min., 53°.5.
22	6 A. M.	.144	65.0	59.7	52.7	59.2		60.2	60.0	Calm . .	0	K. & K. S. 9	
	9	.150	67.0	67.7	59.4	70.2		68.2	67.7	Westward .	1	0	K. over Andes.
	Noon.	.170	69.2	74.5	60.1	75.4		74.7	74.5	S.W. . .	2	K. 1 . . .	Do.
	3 P. M.	.169	70.4	76.9	53.6	75.0		76.3	75.8	W. . . .	3	K. 1 . . .	Do.
	6	.172	71.0	73.7	56.1	72.3		74.0	73.6	W. . . .	3	0	Do.
	9												[at 0h. 30m.
	Midn't.	.154	56.5	57.7	50.6	57.6	51.3	57.5	57.0	N. & W. .	1	0	Max. temp., 77°.2; min., 55°.5. Taken
23	6 A. M.	.085	62.3	59.4	51.5	58.3		58.0	58.0	Southward .	1	0	
	9	.075	66.0	70.5	58.7	72.3		70.4	69.7	Calm . .	0	0	
	Noon.	.066	72.0	81.0	60.8	80.7		79.6	79.5	Calm . .	0	0	
	3 P. M.	.044	77.3	88.0	61.2	85.3		85.4	85.6	S.W. . .	2	0	
	6	.030	79.0	87.2	60.3	81.3		83.4	84.4	S.W. . .	2	0	
	9	.054	75.5	70.7	59.0	72.0		70.5	69.7	Calm . .	0	0	
	Midn't.	.040	72.3	66.0	56.1	65.3	47.5	66.6	65.2	N.W. . .	1	0	Max. temp., 86°.8; min., 51°.2.
24	6 A. M.	.050	69.0	64.9	56.3	64.4		64.7	64.5	Calm . .	0	0	
	9	.079	72.2	80.1	62.2	79.5		78.8	78.4	Calm . .	0	0	
	Noon.	.096	74.7	86.0	65.3	84.6		84.0	84.5	W.S.W. .	4	0	
	3 P. M.	.100	76.5	84.5	65.7	83.3		83.9	84.3	W.S.W. .	4	0	
	6	.112	76.3	77.7	64.6	76.2		78.2	78.0	S.W. . .	3	0	
	9	.120	72.3	68.8	60.3	68.0		68.6	68.0	Eastward .	1	0	
	Midn't.	.112	71.0	63.8	57.9	62.6	53.4	64.2	63.5	Westward .	1	0	Max. temp., 85°.4; min., 58°.7.
25	6 A. M.	.106	68.3	61.5	56.3	59.4		61.5	61.3	Calm . .	0	0	
	9	.110	69.9	69.5	62.0	69.5		70.0	69.3	S.W. . .	1	0	Smoky.
	Noon.	.129	72.5	77.8	65.3	76.2		77.3	76.8	S.W. . .	3	0	Do.
	3 P. M.	.107	74.7	80.0	66.2	78.8		79.5	79.5	S.W. . .	4	0	Do.
	6	.083	75.0	75.7	64.9	75.0		76.3	76.1	W.S.W. . .	4	0	
	9	.104	72.4	66.0	59.7	66.0		66.8	66.3	Eastward .	1	0	
	Midn't.	.079	70.0	62.4	57.6	62.2	57.8	62.5	62.0	Calm . .	0	0	Max. temp., 80°.4; min., 58°.5.
26	6 A. M.	.098	67.0	61.0	57.2	61.0		63.0	62.3	N.W. . .	1	Mist 10 . .	Slight earthquake about 5 A. M., not sufficiently strong to be generally felt.
	9	.122	67.0	60.7	57.9	60.3		62.2	62.0	S.W. . .	1	Mist 10 . .	
	Noon.	.130	68.5	68.0	61.2	67.5		68.3	67.9	S.W. . .	1	K. S. 10 .	
	3 P. M.	.120	70.0	70.2	62.0	69.5		70.6	70.3	S.W. . .	4	K. & S. 10 .	
	6	.096	67.0	64.8	56.0	63.9		66.3	65.6	S.W. . .	3	K. S. 10 . .	
	9	.094	66.5	62.5	58.5	62.2		64.5	64.0	Westward .	1	K. S. 9 . .	
	Midn't.	28.072	67.5	63.5	59.0	63.0	53.0	65.0	64.0	N'd and E'd	1	K. S. 10. .	

* About 3 A. M. an earthquake was felt by some persons, although not generally noticed. At 6h. 30m. A. M., another so slight as not to be generally felt even by those who were awake.

DECEMBER, 1850—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register.			Direction.	Force.		
							Sky.	Max.	Min.				
		Inches.	°	°	°	°	°	°	°				
27	6 A. M.	28.103	67.0	64.2	59.4	63.9		65.6	65.2	Calm . .	0	K. S. 10 . .	During the early part of the night frequent lightning to the eastward and over the Andes.
	9	.132	65.6	67.1	60.8	66.4		70.0	69.5	S.W. . .	1	K. S. 10 . .	
	Noon.	.143	68.4	70.4	63.3	71.4		70.5	69.8	S.W. . .	2	K. S. 9 . .	
	3 P. M.	.109	70.5	73.7	63.3	74 0		73.8	73.4	S.W. . .	3	0	K. & S. over Andes.
	6	.084	70.6	72.7	63.3	71.8		73.0	72.8	S.W. . .	2	0	
	9	.112	68.0	64.0	58.3	63.0		64.5	63.8	Southward .	1	0	Lightning over Andes to eastward.
	Midn't.	.108	67.2	62.0	57.2	61.2	56.0	62.0	61.3	S. westward	1	S. & K.S. 10	Max. temp., 73°.3; min., 60°.4.
28	6 A. M.	.160	66.0	61.4	56.7	60.3		62.7	62.5	S. westward	1	Mist 10 . .	
	9	.180	66.0	61.3	58.1	61.2		62.6	62.5	S. westward	1	S. & K. S. 10	
	Noon.	.196	67.4	67.4	60.8	67.1		67.7	67.2	S.W. . .	1	S. & K. S. 10	
	3 P. M.	.177	69.0	70.3	61.7	69.5		70.5	70.0	S.W. . .	3	S. & K. S. 10	
	6	.144	68.0	67.7	60.1	66.8		68.7	68.2	S.W. . .	3	S. & K. S. 10	
	9	.134	67.0	63.8	57.9	62.8		64.3	63.8	Westward .	1	S. & K. S. 2	
	Midn't.	.122	66.7	62.8	57.4	61.5		63.0	62.8	N. westward	1	C. & K. S. 10	Max. temp., 70°.4; min., 60°.8.
29	6 A. M.	.178	65.0	62.0	56.9	61.0		62.7	62.5	Calm . .	0	K. S. & S. 10	
	9	.198	65.2	63.3	58.5	63.7		64.6	64.1	S.W. . .	2	K. S. & S. 10	
	Noon.	.202	67.0	70.8	62.0	69.8		69.3	68.7	S.W. . .	2	S. & K. S. 10	
	3 P. M.	.170	69.0	74.4	64.9	73.4		73.7	73.2	N. eastward	1	K. C. K. & C. 6	
	6	.140	70.4	74.2	62.4	72.5		74.3	74.0	W.S.W. .	2	K. C. K. & C. 6	
	9	.149	67.7	64.2	56.3	63.0		64.0	63.2	Eastward .	1	S. & K. S. 1	Frequent lightning over Andes to E'd.
	Midn't.	.132	64.6	60.0	54.0	59.0	55.6	59.5	58.4	Calm . .	0	0	Max. temp., 76°.2; min., 58°.4.
*30	6 A. M.	.150	62.6	58.7	54.0	57.6		58.3	58.2	Calm . .	0	S. 1 . . .	
	9	.158	65.2	68.8	60.3	71.0		68.9	68.3	Calm . .	0	0	S. over Andes.
	Noon.	.134	68.0	75.3	62.0	75.2		74.7	74.3	S.W. . .	3	C. K. 2 . .	
	3 P. M.	.120	71.0	77.2	62.4	77.0		78.0	78.0	S.W. . .	4	K. & C. S. 5	
	6	.110	70.8	71.7	60.1	71.0		72.4	72.3	S.W. . .	3	K. & C. S. 3	
	9	.192	64.7	63.7	54.7	62.0		64.4	63.8	Southward .	3	K. & K. S. 10	
	Midn't.	.212	67.0	60.2	54.5	58.3	51.4	60.0	59.5	Southward .	2	K. & K. S. 10	Max. temp., 78°.7; min., 54°.0.
31	6 A. M.	.262	64.0	58.7	53.8	57.4		58.5	58.0	Calm . .	0	K. S. 10 . .	6 A. M., rain during the night, 0.250 in.
	9	.268	63.0	60.1	55.4	59.9		61.3	60.7	Calm . .	0	K. C. K. & K. S. 9	
	Noon.	.264	65.5	69.0	53.4	56.5		68.3	67.7	S.W. . .	1	K. 4 . . .	
	3 P. M.	.223	68.0	74.0	57.4	72.7		73.3	72.7	S.W. . .	3	K. 2 . . .	
	6	.214	69.0	72.4	56.9	71.6		72.6	72.5	S.W. . .	1	0	K. over Andes to eastward.
	9	.232	66.5	62.7	54.0	61.7		62.0	61.3	Eastward .	Air.	0	
	Midn't.	28.194	63.4	58.8	52.2	57.4	51.7	56.7	56.7	Calm . .	0	0	Max. temp., 73°.5; min., 56°.0.

* At 8h. 10m. 30s. P. M., an earthquake quite heavy. About 10h. 30m. P. M., a rain commenced, lasting with some violence for half an hour. Soon after midnight commenced raining again.

DECEMBER, 1830—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register.			Direction.	Force.		
							Sky.	Max.	Min.				
		Inches.	°	°	°	°	°	°	°				
21*	6 A. M.	28.164	65.6	61.3	56.3	59.9		62.6	62.5	Calm . .	0	K. S. 10. .	
	9	.146	67.4	69.1	63.5	71.0		69.0	68.5	Calm . .	0	K. S. 1 . .	On the Andes.
	Noon.	.127	71.4	75.7	68.2	75.4		75.0	74.5	S.W. . .	1	K. 1 . . .	
	3 P. M.	.102	73.2	80.2	66.4	78.8		80.0	80.4	S.W. . .	4	K. 1 . . .	On the Andes.
	6	.092	73.0	76.5	59.9	74.7		76.8	76.5	S.W. . .	2	K. & C. S. 2	
	9	.144	70.5	66.5	57.9	66.0		66.5	55.8	S.S.W. . .	1	K. S. 1 . .	
	Midn't.	.118	69.0	62.3	54.3	61.7	53.4	62.0	61.6	Eastward .	1	K. S. 1 . .	Max. temp., 80°.7; min., 55°.5.
22	6 A. M.	.144	65.0	59.7	52.7	59.2		60.2	60.0	Calm . .	0	K. & K. S. 9	
	9	.150	67.0	67.7	59.4	70.2		68.2	67.7	Westward .	1	0	K. over Andes.
	Noon.	.170	69.2	74.5	60.1	75.4		74.7	74.5	S.W. . .	2	K. 1 . . .	Do.
	3 P. M.	.169	70.4	76.9	53.6	75.0		76.3	75.8	W. . . .	3	K. 1 . . .	Do.
	6	.172	71.0	73.7	56.1	72.3		74.0	73.6	W. . . .	3	0	Do.
	9												[at 0h. 30m.
	Midn't.	.154	56.5	57.7	50.6	57.6	51.3	57.5	57.0	N. & W. .	1	0	Max. temp., 77°.2; min., 55°.5. Taken
23	6 A. M.	.085	62.3	59.4	51.5	58.3		58.0	58.0	Southward .	1	0	
	9	.075	66.0	70.5	58.7	72.3		70.4	69.7	Calm . .	0	0	
	Noon.	.066	72.0	81.0	60.8	80.7		79.6	79.5	Calm . .	0	0	
	3 P. M.	.044	77.3	88.0	61.2	85.3		85.4	85.6	S.W. . .	2	0	
	6	.030	79.0	87.2	60.3	81.3		83.4	84.4	S.W. . .	2	0	
	9	.054	75.5	70.7	59.0	72.0		70.5	69.7	Calm . .	0	0	
	Midn't.	.040	72.3	66.0	56.1	65.3	47.5	66.6	65.2	N.W. . .	1	0	Max. temp., 86°.8; min., 51°.2.
24	6 A. M.	.050	69.0	64.9	56.3	64.4		64.7	64.5	Calm . .	0	0	
	9	.079	72.2	80.1	62.2	79.5		78.8	78.4	Calm . .	0	0	
	Noon.	.096	74.7	86.0	65.3	84.6		84.0	84.5	W.S.W. .	4	0	
	3 P. M.	.100	76.5	84.5	65.7	83.3		83.9	84.3	W.S.W. .	4	0	
	6	.112	76.3	77.7	64.6	76.2		78.2	78.0	S.W. . .	3	0	
	9	.120	72.3	68.8	60.3	68.0		68.6	68.0	Eastward .	1	0	
	Midn't.	.112	71.0	63.8	57.9	62.6	53.4	64.2	63.5	Westward .	1	0	Max. temp., 85°.4; min., 58°.7.
25	6 A. M.	.106	68.3	61.5	56.3	59.4		61.5	61.3	Calm . .	0	0	
	9	.110	69.9	69.5	62.0	69.5		70.0	69.3	S.W. . .	1	0	Smoky.
	Noon.	.129	72.5	77.8	65.3	76.2		77.3	76.8	S.W. . .	3	0	Do.
	3 P. M.	.107	74.7	80.0	66.2	78.8		79.5	79.5	S.W. . .	4	0	Do.
	6	.083	75.0	75.7	64.9	75.0		76.3	76.1	W.S.W. . .	4	0	
	9	.104	72.4	66.0	59.7	66.0		66.8	66.3	Eastward .	1	0	
	Midn't.	.079	70.0	62.4	57.6	62.2	57.8	62.5	62.0	Calm . .	0	0	Max. temp., 80°.4; min., 58°.5.
26	6 A. M.	.098	67.0	61.0	57.2	61.0		63.0	62.3	N.W. . .	1	Mist 10 . .	Slight earthquake about 5 A. M., not
	9	.122	67.0	60.7	57.9	60.3		62.2	62.0	S.W. . .	1	Mist 10 . .	sufficiently strong to be generally
	Noon.	.130	68.5	68.0	61.2	67.5		68.3	67.9	S.W. . .	1	K. S. 10 .	felt.
	3 P. M.	.120	70.0	70.2	62.0	69.5		70.6	70.3	S.W. . .	4	K. & S. 10 .	
	6	.096	67.0	64.8	56.0	63.9		66.3	65.6	S.W. . .	3	K. S. 10 . .	
	9	.094	66.5	62.5	58.5	62.2		64.5	64.0	Westward .	1	K. S. 9 . .	
	Midn't.	28.072	67.5	63.5	59.0	63.0	53.0	65.0	64.0	N'd and E'd	1	K. S. 10. .	

* About 3 A. M. an earthquake was felt by some persons, although not generally noticed. At 6h. 30m. A. M., another so slight as not to be generally felt even by those who were awake.

JANUARY, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Stand-ard.	Wet.	Dry.	Register. Sky.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°	°	°				
5	6 A. M.	28.286	62.7	59.2	53.6	58.1		59.0	58.5	Calm . .	0	S. & K. S. 10	At 8*h*. 15*m*., an earthquake.
	9	.286	62.6	57.0	53.1	56.7		58.0	58.0	S.W. . .	3	S. & K. S. 10	
	Noon.	.311	63.5	62.2	54.0	61.5		63.0	62.6	S.W. . .	4	S. & K. S. 10	
	3 P. M.	.300	65.5	67.0	55.6	67.1		67.8	67.4	S.W. . .	3	K. S. 4 . .	
	6	.292	66.6	68.4	55.6	67.3		68.6	68.4	Westward .	3	K. 1 . . .	Over Andes..
	9	.278	63.7	59.8	51.1	58.1		58.7	58.0	Eastward .	Airs.	0	A few K. around the horizon.
	Midn't.	.255	61.7	55.1	48.4	53.4	47.7	53.2	52.5	N. eastward	Airs.	0	Max. temp., 69°.6; min., 52°.5.
6	6 A. M.	.274	60.0	51.9	46.4	51.3		50.2	50.6	N. eastward	Air.	C. S. 1 . .	
	9	.270	62.3	64.5	55.2	64.9		64.4	63.7	Westward .	1	C. S. 1 . .	
	Noon.	.264	64.9	71.5	57.4	71.8		71.3	71.0	S.S.W. . .	2	0	Few K. and C. S. around horizon.
	3 P. M.	.248	67.6	77.5	57.6	76.2		76.8	76.8	S.W. . .	3	K. S. 1 . .	
	6	.232	69.0	74.5	56.9	73.8		75.5	75.5	S. W. . .	3	C. 5 . . .	
	9	.238	66.4	64.4	54.3	65.5		64.2	63.6	Calm . .	0	0	
	Midn't.	.188	66.0	60.0	52.9	59.0	45.7	59.5	59.3	N.W. . .	1	S. & C. S. 2	Max. temp., 77°.5; min., 47°.8.
7	6 A. M.	.142	63.3	58.0	51.1	57.2		57.3	57.5	Calm . .	0	0	At 6*h*. 36*m*. 30*s*. P. M., two distinct,
	9	.150	65.7	72.8	59.7	73.6		72.3	71.5	Calm . .	0	0	though slight, earthquake shocks.
	Noon.	.150	68.5	79.6	60.8	78.8		78.6	78.2	S.W. . .	4	0	No rambling noise was perceived.
	3 P. M.	.155	71.6	78.5	61.2	82.0		82.0	82.4	S.W. . .	5	K. C.S. & S. 1	
	6	.156	73.0	74.5	59.2	73.4		75.3	75.5	S.W. . .	3	K. S. & C.S. 2	
	9	.160	68.0	65.5	55.9	64.1		65.4	64.8	E. by S. . .	1	S. & C. S. 2	
	Midn't.	.161	65.7	61.7	54.0	60.8	47.8	60.5	60.0	S. eastward	1	S. 1 . . .	Max. temp., 82°.3; min., 52°.0.
8	6 A. M.	.212	63.5	61.0	54.0	60.3		60.0	60.0	Calm . .	0	0	Smoky.
	9	.212	65.8	70.6	57.4	71.0		70.2	69.5	Calm . .	0	K. S. & C. 3	
	Noon.	.206	68.3	76.5	59.7	75.0		76.4	75.0	S.W. . .	3	C. K. 1 . .	
	3 P. M.	.194	70.5	78.6	60.8	77.4		78.5	78.7	S.W. . .	5	K. 1 . . .	Around the horizon.
	6	.197	72.0	74.5	58.1	72.9		75.0	74.6	S.W. . .	2	0	K. over Andes to the eastward.
	9	.214	68.2	64.3	54.9	63.9		64.2	63.8	Calm . .	0	0	
	Midn't.	.195	67.0	60.2	53.4	59.0	50.8	59.5	59.5	Calm . .	0	0	Max. temp., 79°.7; min., 55°.0.
9	6 A. M.	.183	64.0	56.8	52.0	56.3		56.4	56.3	Calm . .	0	0	
	9	.195	66.5	72.5	60.8	72.9		71.4	70.6	Calm . .	0	0	Smoky.
	Noon.	.194	69.5	78.5	62.6	77.7		77.2	76.8	S.W. . .	1	K. S. & C.S. 2	
	3 P. M.	.184	73.0	79.5	61.2	77.4		78.6	78.0	S.W. . .	2	K. S. & C.S. 2	
	6	.181	73.8	76.5	60.8	74.0		77.0	76.6	S.W. . .	1	C. K. 1 . .	
	9	.198	69.4	66.0	57.2	65.3		66.0	65.4	Eastward .	1	0	
	Midn't.	.182	67.6	62.6	55.6	61.5	51.0	61.7	61.4	Eastward .	1	0	Max. temp., 81°.2; min., 53°.8.
10	6 A. M.	.160	64.6	60.6	55.4	59.4		60.2	60.0	Calm . .	0	0	
	9	.144	68.0	73.7	61.2	72.9		72.5	71.8	Calm . .	0	0	K. over Andes to the eastward.
	Noon.	.135	70.6	80.3	64.4	80.1		78.7	79.0	S.W. . .	3	0	Do. do.
	3 P. M.	.120	73.5	85.0	63.0	83.5		83.3	83.5	S.W. . .	4	0	Do. do.
	6	.118	74.0	78.6	62.4	76.7		78.5	78.8	S.W. . .	2	0	Do. do.
	9	.134	70.4	67.4	58.3	66.4		67.0	66.5	E. by S. . .	1	0	
	Midn't.	.096	68.7	63.8	56.7	62.8	52.6	63.3	62.7	Eastward .	Air.	0	Max. temp., 83°.6; min., 55°.0.
11	6 A. M.	.170	65.0	60.0	54.7	59.2		59.4	59.0	N.E. . .	1	0	Smoky.
	9	.091	68.6	74.5	63.5	75.0		78.5	77.8	S.W. . .	1	0	Do.
	Noon.	.104	72.4	79.0	63.7	77.4		77.6	77.4	S.W. . .	3	0	K. around horizon.
	3 P. M.	.100	74.5	78.1	62.0	75.6		77.4	77.3	S.W. . .	5	K. 1 . . .	Do.
	6	.124	71.0	71.0	59.9	69.5		71.7	70.8	S.W. . .	4	C. K. 3 . .	
	9	.162	69.2	64.0	56.3	62.4		63.8	63.0	S.W. . .	1	0	
	Midn't.	28.154	67.4	60.5	54.5	58.7		59.6	59.0	S.W. . .	2	0	

JANUARY, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register.			Direction.	Force.		
							Sky.	Max.	Min.				
		Inches.	°	°	°	°	°	°	°				
12	6 A. M.	28.142	64.5	58.9	53.6	57.2		58.7	58.6	N.E. . .	Air.	0	Mist round the base of the mountains.
	9	.141	66.8	70.0	63.3	71.8		69.0	68.5	S.W. . .	1	0	
	Noon.	.129	70.2	79.5	63.9	79.5		78.4	78.0	S.W. . .	2	0	
	3 P. M.	.110	73.5	84.7	64.1	83.8		83.7	83.8	W.S.W. . .	3	K. S. 1 . .	
	6	.099	74.6	79.8	64.9	78.3		80.4	80.8	W.S.W. .	3	0	K. over mountains to eastward.
	9	.122	72.7	70.2	63.5	69.3		69.2	70.0	Southward .	Air.	0	
	Midn't.	.094	71.5	65.0	58.1	63.7	51.7	65.0	64.5	N.W. . .	1	0	Max. temp., 83°.0; min., 55°.0.
13	6 A. M.	.133	68.0	66.2	60.3	66.2		65.6	65.6	Calm . .	0	0	
	9	154	70.8	77.2	65.3	78.0		75.7	75.0	Calm . .	0	0	
	Noon.	.162	73.0	83 7	65.7	83.0		81.9	82.2	S.W. . .	3	0	Few K. over Andes.
	3 P. M.	.160	75.3	85.7	64.1	84.0		84.2	84.6	S.W. . .	4	0	K. heavy over Andes.
	6	.173	75.5	78.7	60.6	76.2		78.5	78.5	S.W. . .	4	0	Do. do.
	9	.204	71.8	68.0	55.9	66.8		67.3	66.4	Eastward .	1	0	
	Midn't.	.178	70.3	64.0	54.5	62.6	54.5	62.6	62.3	Eastward .	1	0	Max. temp., 84°.3; min., 59°.5.
14	6 A. M.	.160	67.5	62.0	54.3	60.8		61.5	61.5	Calm . .	0	0	
	9	.175	70.0	75.7	62.4	76.2		74.7	74.0	Calm . .	0	0	Smoky.
	Noon.	.187	73.4	83.5	64.5	83.0		81.6	81.8	N.W. . .	1	0	K. over mountains to eastward.
	3 P. M.	.179	75.8	84.7	63.5	82.6		83.3	83.6	W. . . .	4	0	
	6	.174	76.0	77.0	62.2	75.6		77.2	77.5	S.W. . .	3	0	Do. do.
	9	.182	72.2	68.5	59.0	67.5		68.3	67.4	Eastward .	Air.	0	
	Midn't.	.152	73.0	65.0	57.4	63.9	53.0	63.7	63.3	Eastward .	1	0	Max. temp., 83°.5; min., 57°.7.
15	6 A. M.	.138	70.6	63.0	57.4	62.0		62.3	62.3	N. eastward	Air.	0	
	9	.135	72.0	77.6	64.9	78.5		76.2	75.8	Calm . .	0	0	
	Noon.	.120	74.3	83.4	64.4	82.0		82.5	81.3	S.W. . .	2	0	K. over mountains to eastward.
	3 P. M.	.085	76.4	85.5	63.9	83.8		84.2	85.2	S.W. . .	3	0	Do. do.
	6	.076	76.7	79.8	63.3	77.7		80.3	80.5	S.W. . .	3	0	Do. do.
	9	.092	75.0	70.5	62.6	69.3		70.2	69.3	Eastward .	Air.	0	
	Midn't.	.060	73.4	65.8	57.6	64.4	55.2	65.5	65.5	Eastward .	1	0	Max. temp., 84°.4; min., 59°.0.
16	6 A. M.	.068	70.0	65.5	59.0	65.7		64.8	64.7	Calm . .	0	0	
	9	.085	72.4	78.5	64.9	78.3		76.8	76.3	Calm . .	0	0	
	Noon.	.092	75.0	83.2	62.0	82.0		81.8	82.0	S.W. . .	3	0	K. over Andes to eastward.
	3 P. M.	.077	77.2	86.0	61.5	84.2		84.4	85.0	S.W. . .	3	0	Do. do.
	6	.077	77.0	79.2	61.2	77.4		79.7	79.8	S.W. . .	2	0	Do. do.
	9	.109	73.6	69.8	57.4	68.4		69.2	68.5	S.W. . .	1	0	
	Midn't.	.082	72.8	66.0	57.2	64.1	50.8	64.7	64.3	Eastward .	1	0	Max. temp., 84°.7; min., 60°.2.
17	6 A. M.	.069	69.3	64.0	56.3	63.0		63.0	62.8	Calm . .	0	0	
	9	.071	72.0	77.0	63.3	77.4		75.7	75.4	S. westward	Air.	0	
	Noon.	.070	75.4	86.0	65.5	85.5		83.8	84.8	S.W. . .	1	0	
	3 P. M.	.066	78.5	87.3	66.0	85.8		85.5	86.7	S.W. . .	5	0	K. over Andes to eastward.
	6	.073	78.0	80.0	63.9	78.3		80.4	80.5	S.W. . .	2	0	Do. do.
	9	.088	74.3	71.0	60.1	70.0		70.8	70.0	Eastward .	1	0	
	Midn't.	.080	73.7	67.5	58.5	65.3	53.4	67.0	66.0	Calm . .	0	0	Max. temp., 86°.3; min., 58°.2.
18	6 A. M.	.074	70.5	64.1	56.7	62.6		64.2	63.7	Calm . .	0	0	
	9	.095	72.4	71.0	62.2	69.5		70.5	69.7	S.W. . .	1	0	
	Noon.	.090	73.5	78.5	65.5	78.1		77.5	72.2	S.W. . .	3	0	
	3 P. M.	.070	76.0	81.9	66.2	80.3		80.8	80.7	S.W. . .	3	0	K. over Andes to E.
	6	.050	76.6	78.0	65.1	75.6		78.6	78.5	S.W. . .	2	0	Do.
	9	.062	74.5	69.0	60.1	67.3		68.7	68.0	Calm . .	0	0	Earthquake at 6*h.* 28*m.* 45*s.* P. M.
	Midn't.	28.050	72.8	64.3	57.9	62.6	56.4	64.3	63.7	N.W. . .	1	0	Max. temp., 80°.8; min., 60°.0.

JANUARY, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register.			Direction.	Force.		
							Sky.	Max.	Min.				
		Inches.	°	°	°	°	°	°	°				
19	6 A. M.	28.068	68.0	63.0	57.4	61.2		63.8	64.3	Calm . .	0	Mist 10 . .	Late.
	9	.056	69.0	68.5	60.8	65.5		67.7	66.8	S.W. . .	1	K. S. 1 . .	
	Noon.	.079	72.2	76.0	64.4	74.5		74.7	74.5	S.W. . .	1	0	K. over mountains to eastward.
	3 P. M.	.062	74.5	79.8	66.6	79.3		78.8	78.7	W.S.W. . .	3	0	Do. do.
	6	.048	75.3	75.8	64.4	74.5		76.5	76.5	W.S.W. .	3	C. K. 1 . .	Do. do.
	9	.067	72.7	67.2	60.1	65.7		67.4	66.7	Eastward .	Air.	C. K. 1 .	
	Midn't.	.062	69.5	63.5	57.2	61.7	53.7	63.0	62.3	Calm . .	0	C. K. & S. 3	Max. temp., 79°.3; min., 59°.7.
20	6 A. M.	.090	66.7	63.0	57.4	60.8		62.4	62.0	Calm . .	0	Mist 10 . .	
	9	.118	68.0	65.5	58.3	65.1		66.5	66.0	S.W. . .	1	K. S. & S. 10	
	Noon.	.136	70.8	74.6	64.9	73.4		74.2	73.6	S.W. . .	3	K. 1 . . .	K. over Andes.
	3 P. M.	.132	73.6	79.4	65.3	77.0		78.4	78.3	W.S.W. . .	4	K. 1 . . .	Do.
	6	.124	74.3	75.6	64.1	71.4		75.8	75.7	W.S.W. . .	4	0	Do. At 6h. 6m P. M.,
	9	.131	71.2	67.3	60.1	65.7		68.7	68.4	S.W. . .	1	0	two very slight earthquake shocks.
	Midn't.	.102	70.0	64 0	58.5	63.0	55.0	66.5	66.3	Northward .	1	0	Max. temp., 78°.3; min., 59°.8.
21	6 A. M.	.075	66.8	64.5	59.2	63.3		66.6	66.4	Calm . .	0	0	
	9	.085	70.4	75.0	65.5	75.0		73.7	73.0	Calm . .	0	0	Smoky.
	Noon.	.086	73.3	82.4	65.7	82.6		80.6	80.4	S.W. . .	1	0	
	3 P. M.	.054	76.7	88.0	66.2	87.3		85.6	86.4	S.W. . .	3	0	K. over mountains to eastward.
	6	.047	77.8	83.5	65.7	81.5		82.6	82.8	S.W. . .	3	0	Do. do.
	9	.058	75.0	71.7	62.2	69.8		71.6	70.6	Calm . .	0	0	
	Midn't.	.018	74.0	67.3	59.4	65.7	55.5	66.8	66.5	Calm . .	0	0	Max. temp., 86°.2; min., 62°.0.
22	6 A. M.	.014	70.4	68.0	61.5	68.4		67.6	67.0	Calm . .	0	0	Late. Smoky.
	9	.020	72.6	79.0	66.0	78.8		77.4	77.0	Calm . .	0	0	Smoky.
	Noon.	.032	75.7	86.5	66.6	86.0		84.0	84.6	S.W. . .	1	0	Do.
	3 P. M.	.038	78.0	89.1	66.6	88.0		87.2	88.0	S.W. . .	3	K. S. & C. 1	
	6	.034	78.2	80.5	63.7	78.5		82.0	83.0	S.W. . .	3	C. S. 1 . .	
	9	.058	76.2	70.7	62.4	70.2		71.4	71.0	S.W. . .	1	0	
	Midn't.	.022	74.4	64.8	59.4	65.7	56.4	66.5	66.2	Calm . .	0	S. & C. S. 1	Max. temp., 87°.3; min., 61°.5.
23	6 A. M.	.019	71.0	66.3	60.1	66.2		65.7	65.6	Calm . .	0	S. & C. S.	
	9	.033	73.0	77.5	64.9	77.4		76.2	75.7	Calm . .	0	S. C. S. & C. 2	
	Noon.	.024	75.0	84.0	67.7	83.8		82.4	82.6	S.W. . .	3	C. S. 1 . .	
	3 P. M.	.007	77.5	86.5	67.5	84.8		84.7	85.4	S.W. . .	3	C. S. S. & C. 3	
	6	.008	78.7	81.3	65.3	78.8		81.2	80.8	S.W. . .	3	C. S. 7 . .	Earthquake at 8h. 1m. 30s. P. M.
	9	28.011	74.6	72.0	62.2	70.2		72.4	72.4	Westward .	1	C. S. 4 . .	
	Midn't.	27.998	74.5	69.0	60.8	67.5	56.0	68.4	67.7	N. eastward	Air.	S. & C. S. 5	Max. temp., 84°.7; min., 60°.5.
24	6 A. M.	28.036	72.0	64.5	59.2	63.0		64.3	64.0	N. eastward	Air.	C. S. 6 . .	
	9	.037	74.0	78.8	65.1	77.4		77.7	77.2	Calm . .	0	C. & C. S. 9	
	Noon.	.036	76.0	83.3	67.7	83.0		81.7	81.7	S.W. . .	1	C. S. & K. 9	
	3 P. M.	.000	78.0	87.7	67.3	85.0		85.2	85.7	S.W. . .	1	C. & C. S. 4	
	6	.005	78.5	81.7	61.2	78.3		80.4	80.7	S.W. . .	2	C. S. & K. 3	
	9	.029	76.0	71.2	61.2	70.8		73.5	73.0	Calm . .	0	C. S. 3 . .	
	Midn't.	.015	74.7	69.4	59.4	66.2	58.6	71.2	71.2	N.N.W. .	1	K.S. & C.S.4	Max. temp., 81°.3; min., 61°.5.
25	6 A. M.	.026	70.5	64.6	58.5	63.0		64.7	64.5	Calm . .	0	S. & S. C. 5	
	9	.032	72.7	76.8	65.1	76.7		75.0	75.5	Calm . .	0	S. & C. S. 3	Smoky.
	Noon.	.020	76.0	84.7	67.7	84.8		83.4	83.5	S.W. . .	3	K. & C. S. 2	Do.
	3 P. M.	.004	78.6	88.7	67.5	86.2		86.8	87.8	S.W. . .	3	C. K. 6 . .	Do.
	6	.004	80.0	83.0	66.4	78.0		81.7	82.3	S.W. . .	3	K.K. S. & C. 6	Do.
	9	28.010	74.4	69.1	60.8	67.5		71.4	71.0	Southward .	1	C. S. 2 . .	
	Midn't.	27.988	72.0	68.2	59.7	66.2	55.9	68.0	67.0	Calm . .	0	0	Max. temp., 87°.2; min., 61°.8.

JANUARY, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Stand-ard.	Wet.	Dry.	Register. Sky.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°	°	°				
26	6 A. M.	28.054	69.0	64.5	58.5	63.0		63.0	62.5	Calm . .	0	0	Smoky.
	9	.085	69.7	71.5	61.7	70.0		70.1	69.6	S.W. . .	2	0	Do.
	Noon.	.112	78.4	79.0	66.6	78.1		77.7	77.7	S.W. . .	3	K. S. 1 . .	Do.
	3 P. M.	.090	75.5	81.8	65.3	79.3		80.3	80.4	S.W. . .	5	0	K. heavy over Andes to E.
	6	.092	75.6	75.0	62.0	72.9		74.8	74.8	S.W. . .	4	0	K. heavy over Andes to E.; smoky.
	9	.104	71.0	65.6	57.6	64.4		66.5	66 5	Westward .	1	0	
	Midn't.	.088	67.7	60.3	54.5	59.4	54.5	62.3	62.2	S.S.W. . .	3	0	Max. temp., 80°.5; min., 60°.7.
27	6 A. M.	.092	66.0	61.7	56.3	59.9		61.4	61.3	Calm . .	0	K. & C. K. 4	
	9	.110	69.7	70.7	62.0	70.2		70.2	69.7	S.W. . .	1	K. & C. K. 2	
	Noon.	.096	72.4	79.4	64.9	79.0		78.5	78.2	S.W. . .	2	K. & C. K. 1	
	3 P. M.	.095	75.0	84.1	64.9	82.8		83.2	83.7	S.W. . .	1	K. 1 . . .	Over Andes.
	6	.104	76.0	77.2	62.0	75.0		76.8	77.3	S.W. . .	2	K. & C. K. 1	
	9	.140	69.0	63.5	55.4	62.4		65.2	65.3	Southward .	1	0	
	Midn't.	.138	68.7	59.0	54.9	58.5	53.7	62.0	61.7	Southward .	1	0	Max. temp., 84°.3; min., 56°.8.
28	6 A. M.	.048	67.4	58.5	54.5	58.5		57.2	57.0	Calm . .	0	0	
	9	.163	69.3	69.4	60.3	70.0		68.7	68.3	Calm . .	0	0	Smoky.
	Noon.	.166	72.0	78.8	64.6	78.8		77.8	77.6	S.W. . .	2	0	Smoky; K. over Andes.
	3 P. M.	.136	75.0	83 8	65.3	83.3		82.8	82.8	S.W. . .	3	0	Do. do.
	6	.138	76.0	79.9	62.6	77.7		79.8	80.2	S W. . .	1	0	K. over Andes.
	9	.156	72.3	66.8	58.5	66.0		69.6	69.2	Calm . .	0	0	
	Midn't.	.170	70.8	62.6	56.3	61.5	52.4	65.0	65.0	Calm . .	0	0	Max. temp., 83°.4; min., 55°.6.
29	6 A. M.	.203	68.4	62.2	55.6	61.0		61.4	61 0	Calm . .	0	0	At 7h. 30m. P. M. an earthquake, preceded by a rumbling noise that lasted several seconds.
	9	.229	70.5	71.5	61.2	71.6		70.3	69.8	Calm . .	0	0	
	Noon.	.230	72.7	79.8	64.4	78.8		78.3	78.2	S.W. . .	2	0	
	3 P. M.	.204	74.7	83.0	62.2	80 3		82.6	83.4	S.W. . .	3	0	K. over Andes.
	6	.187	75.3	78.4	62.2	75.8		78.3	78.5	S.W. . .	3	0	
	9	.210	73.0	66.2	59.4	64.9		68.5	67.8	Southward .	Air.	0	
	Midn't.	.207	71.4	61.5	57.9	60.3	54.0	64.8	64.8	S. eastward.	Air.	0	Max. temp., 83°.5; min., 58°.4.
30	6 A. M.	.158	69.4	64.7	59.2	63.5		65.7	65.0	Calm . .	0	Mist 10 . .	Observation taken at 7 A. M.
	9	.136	69.0	64.2	59.2	63.5		64.8	64.5	S.W. . .	1	S. & K. S. 10	
	Noon.	.148	69.8	67.7	60.3	68.7		68.2	67.6	S.W. . .	1	S. & K. S. 10	
	3 P. M.	.117	76.7	75.4	61.5	73.4		74.3	74.0	S.W. . .	1	K. & K. S. 7	
	6	.115	71.0	69.0	56.9	66.8		69.2	68.8	S.W. . .	2	K. & C. K. 4	
	9	.126	67.2	60.5	52.7	59.2		62.4	62.5	S.S.W. . .	3	K. 2 . . .	
	Midn't.	.132	65.5	58.3	50.6	58.1	51.0	60.3	60.3	W.N.W. .	5	K. & K. S. 4	Max. temp., 74°.5; min., 59°.7.
*31	6 A. M.	.160	66.0	62.5	54.3	59.9		63.7	64.0	Southward .	Air.	S. & K. S. 10	Observation taken at 7h. 30m.
	9	.179	66.0	61.7	54.3	60.3		62.0	61.8	Southward .	1	S. & K. S. 10	
	Noon.	.205	68.4	71.5	57.6	71.4		70.8	70.2	S.W. . .	2	K. S & C.S.10	
	3 P. M.	.183	70.0	74.5	57.4	73.4		74.0	73.5	S.W. . .	4	K.S. & C.S.10	Clouds from N.W.
	6	.192	70.0	67.8	55.4	66.0		67.4	67.6	S.W. . .	4	K.S. & C.S.10	
	9	.228	68.2	61.6	52.5	60.8		62.3	62.5	S.W. . .	3	S. & K. S. 10	
	Midn't.	28.232	66.5	60.3	51.3	59.2	50.8	60.6	61.0	S.W. . .	5	S. & K. S. 10	Max. temp., 74°.5; min., 58°.7.

* Some few drops of rain fell in the early morning—not enough to measure—though the pavement was moist at 6 A. M.

FEBRUARY, 1851.

DATE.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Max.	Min.	Direction.	Force.		
		Inches.	°	°	°	°	°	°	°				
1	6 A.M.	28.256	64.7	62.8	54.3	62.4		64.3	64.0	Calm . .	0	S. & K. S. 10	Late.
	9	.267	66.4	62.2	53.1	62.2		62.7	62.6	Calm . .	0	S.K.S.&C.10	
	Noon.	.271	67.0	65.6	56.7	66.0		65.6	65.3	Calm . .	0	S. & K. S. 10	Appearance of rain over mountains to
	3 P. M.	.226	67.5	68.5	55.6	68.0		68.6	68.0	Calm . .	0	S.K.S.&C.K. 9	eastward.
	6	.181	68.3	68.5	54.3	67.3		68.7	68.4	Southward .	Air.	S. & K. S. 10	
	9	.196	67.6	62.0	54.7	61.0		63.3	63.3	S.W. . .	1	K. S. 10 . .	
	Midn't.	.162	66.7	62.0	54.3	61.5	50.7	63.0	62.8	Westward .	2	S. & K. S. 7	Max. temp., 69°.6; min., 59°.4.
2	6 A.M.	.106	66.2	64.5	55.6	64.6		64.7	64.3	Calm . .	0	K. S. 9 . .	During the night noticed (*for the first*
	9	.132	66.5	69.0	56.1	68.7		68.3	67.8	S.W. . .	4	K. S. 9 . .	*time*) flashes of lightning over the
	Noon.	.086	68.7	78.8	58.3	76.0		76.5	76.2	S.W. . .	4	K. & C. S. 6	range of mountains to the westward.
	3 P. M.	.063	71.6	78.0	56.7	75.4		77.3	77.3	S.W. . .	4	K.K.S.&S. 10	
	6	.058	71.0	71.0	55.6	69.3		71.6	71.0	S.W. . .	4	K. S. 10 .	
	9	.066	68.6	64.2	54.5	63.5		66.8	66.4	Southward .	1	S. & C. S. 4	A slight quantity of rain fell at 11 P. M.
	Midn't.	.076	66.6	60.5	52.9	60.3	52.4	63.6	62.7	N. eastward	1	S. & C. S. 4	Max. temp., 80°.5; min., 58°.7.
*3	6 A.M.	.175	64.2	61.3	55.2	60.3		61.4	61.0	N. eastward	1	S. & K. S. 10	Late.
	9	.194	64.5	60.7	54.7	60.6		61.5	61.3	N.W. . .	1	Rain . . .	
	Noon.	.188	66.0	61.0	58.3	61.5		62.8	62.0	N. eastward	1	S. & K. S. 10	
	3 P. M.	.188	67.3	65.7	59.9	64.6		66.6	66.4	N.W. . .	8	K. S. 10 .	
	6	.204	67.0	64.5	60.1	63.7		65.4	65.2	N.W. . .	2	Rain . . .	
	9	.224	65.6	61.5	57.6	60.8		62.8	62.7	N.W. . .	2	Rain . . .	
	Midn't.	.167	65.6	60.7	57.2	60.3	51.5	62.0	61 8	N.W. . .	2	K.S.S.&C.S.10	Max. temp., 69°.5; min., 58°.7.
†4	6 A.M.	.192	64.4	58.8	56.1	59.0		58.7	58.6	N.W. . .	1	C.K.K.&C. 6	
	9	.202	66.2	70.5	60.6	72.0		69.6	68.8	Calm . .	0	C. & C. K. 5	
	Noon.	.197	68.6	77.0	63.0	78.0		76.5	76.0	S.W. . .	2	C. & C. K. 6	
	3 P. M.	.182	70.7	82.0	64.9	81.0		80.2	80.0	S.W. . .	3	K. & C. K. 8	
	6	.187	71.0	70.5	65.1	70.0		72.7	72.2	Calm . .	0	C. K. 9 . .	Clouds from northwest.
	9	.214	69.0	66.0	62.4	64.1		68.5	67.0	N.E. . . .	1	K. S. 1 . .	
	Midn't.	.191	68.4	62.6	60.3	62.6	53.7	65.2	64.8	Eastward .	1	K. S. 3 . .	Max. temp., 80°.3; min., 56°.4.
5	6 A. M.	.248	66.0	63.5	59.7	63.0		63.7	63.3	Calm . .	0	K.C.K.&C. 7	
	9	.270	66.8	66.2	60.8	66.2		66.3	65.8	Calm . .	0	K.K.S. & S.10	
	Noon.	.265	68.0	72.2	63.9	72.0		70.8	70.2	S.W. . .	1	K. 5 . . .	
	3 P. M.	.233	70.5	79.2	65.1	77.4		77.2	76.8	S.W. . .	3	K. 5 . . .	
	6	.235	71.4	75.5	62.8	73.4		74.8	74.5	S.W. . .	2	K. 2 . . .	
	9	.247	69.2	65.7	58.5	65.7		68.2	67.8	Westward .	1	0	
	Midn't.	.226	67.0	61.4	57.2	60.6	58.5	64.7	64.5	Calm . .	0	0	Max. temp., 77°.4; min., 61°.4.
6	6 A. M.	.210	64.6	60.7	56.5	59.4		69.7	69.5	Calm . .	0	0	Earthquake at 2h. 59m. P. M.; quite a
	9	.209	66.8	71.0	63.5	72.7		69.8	69.0	N. eastward	Air.	0	heavy shock. E. R. S.
	Noon.	.198	69.5	79.5	63.7	78.3		77.8	77.5	N.E. . . .	1	0	
	3 P. M.	.191	72.7	84.5	66.0	83.3		82.8	82.7	W.S.W. .	2	0	K. S. over Andes.
	6	.198	74.0	81.0	64.6	79.3		80.4	80.4	S.W. . .	2	0	Do do.
	9	.213	71.9	69.4	61.2	68.9		72.2	71.6	Eastward .	Air.	0	
	Midn't.	28.171	70.0	66.8	59.9	65.7	53.4	69.3	69.9	Eastward .	Air.	0	Max. temp., 83°.4; min., 56°.3.

* At 6 A. M. the ground was wet, some rain having fallen during the night. At 8 A. M. rain again commenced. Quantity of rain measured at noon, 0.26 *in.*

† Rain measured at 9 A. M. 0.065 *in.* At 4 P. M. rain commenced, and continued until a few minutes before 6 P. M. Some lightning over mountains to westward. At 6h. 5m. P. M. commenced to rain again, and continued until near 9 P. M. At 8h. 45m. P. M. raining quite hard. Quantity measured at midnight 0.205 *in.*

JANUARY, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register.			Direction.	Force.		
							Sky.	Max.	Min.				
		Inches.	°	°	°	°	°	°	°				
26	6 A. M.	28.054	69.0	64.5	58.5	63.0		63.0	62.5	Calm . .	0	0	Smoky.
	9	.085	69.7	71.5	61.7	70.0		70.1	69.6	S.W. . .	2	0	Do.
	Noon.	.112	78.4	79.0	66.6	78.1		77.7	77.7	S.W. . .	3	K. S. 1 . .	Do.
	3 P. M.	.090	75.5	81.8	65.3	79.3		80.3	80.4	S.W. . .	5	0	K. heavy over Andes to E.
	6	.092	75.6	75.0	62.0	72.9		74.8	74.8	S.W. . .	4	0	K. heavy over Andes to E.; smoky.
	9	.104	71.0	65.6	57.6	64.4		66.5	66 5	Westward .	1	0	
	Midn't.	.088	67.7	60.3	54.5	59.4	54.5	62.3	62.2	S.S.W. . .	3	0	Max. temp., 80°.5; min., 60°.7.
27	6 A. M.	.092	66.0	61.7	56.3	59.9		61.4	61.3	Calm . .	0	K. & C. K. 4	
	9	.110	69.7	70.7	62.0	70.2		70.2	69.7	S.W. . .	1	K. & C. K. 2	
	Noon.	.096	72.4	79.4	64.9	79.0		78.5	78.2	S.W. . .	2	K. & C. K. 1	
	3 P. M.	.095	75.0	84.1	64.9	82.8		83.2	83.7	S.W. . .	1	K. 1 . . .	Over Andes.
	6	.104	76.0	77.2	62.0	75.0		76.8	77.3	S.W. . .	2	K. & C. K. 1	
	9	.140	69.0	63.5	55.4	62.4		65.2	65.3	Southward .	1	0	
	Midn't.	.138	68.7	59.0	54.9	58.5	53.7	62.0	61.7	Southward .	1	0	Max. temp., 84°.3; min., 56°.8.
28	6 A. M.	.048	67.4	58.5	54.5	58.5		57.2	57.0	Calm . .	0	0	
	9	.163	69.3	69.4	60.3	70.0		68.7	68.3	Calm . .	0	0	Smoky.
	Noon.	.166	72.0	78.8	64.6	78.8		77.8	77.6	S.W. . .	2	0	Smoky; K. over Andes.
	3 P. M.	.136	75.0	83 8	65.3	83.3		82.8	82.8	S.W. . .	3	0	Do. do.
	6	.138	76.0	79.9	62.6	77.7		79.8	80.2	S W. . .	1	0	K. over Andes.
	9	.156	72.3	66.8	58.5	66.0		69.6	69.2	Calm . .	0	0	
	Midn't.	.170	70.8	62.6	56.3	61.5	52.4	65.0	65.0	Calm . .	0	0	Max. temp., 83°.4; min., 55°.6.
29	6 A. M.	.203	68.4	62.2	55.6	61.0		61.4	61 0	Calm . .	0	0	At 7h. 30m. P. M. an earthquake, preceded by a rumbling noise that lasted several seconds.
	9	.229	70.5	71.5	61.2	71.6		70.3	69.8	Calm . .	0	0	
	Noon.	.230	72.7	79.8	64.4	78.8		78.3	78.2	S.W. . .	2	0	
	3 P. M.	.204	74.7	83.0	62.2	80 3		82.6	83.4	S.W. . .	3	0	K. over Andes.
	6	.187	75.3	78.4	62.2	75.8		78.3	78.5	S.W. . .	3	0	
	9	.210	73.0	66.2	59.4	64.9		68.5	67.8	Southward .	Air.	0	
	Midn't.	.207	71.4	61.5	57.9	60.3	54.0	64.8	64.8	S. eastward.	Air.	0	Max. temp., 83°.5; min., 58°.4.
30	6 A. M.	.158	69.4	64.7	59.2	63.5		65.7	65.0	Calm . .	0	Mist 10 . .	Observation taken at 7 A. M.
	9	.136	69.0	64.2	59.2	63.5		64.8	64.5	S.W. . .	1	S. & K. S. 10	
	Noon.	.148	69.8	67.7	60.3	68.7		68.2	67.6	S.W. . .	1	S. & K. S. 10	
	3 P. M.	.117	76.7	75.4	61.5	73.4		74.3	74.0	S.W. . .	1	K. & K. S. 7	
	6	.115	71.0	69.0	56.9	66.8		69.2	68.8	S.W. . .	2	K. & C. K. 4	
	9	.126	67.2	60.5	52.7	59.2		62.4	62.5	S.S.W. . .	3	K. 2 . . .	
	Midn't.	.132	65.5	58.3	50.6	58.1	51.0	60.3	60.3	W.N.W. .	5	K. & K. S. 4	Max. temp., 74°.5; min., 59°.7.
*31	6 A. M.	.160	66.0	62.5	54.3	59.9		63.7	64.0	Southward .	Air.	S. & K. S. 10	Observation taken at 7h. 30m.
	9	.179	66.0	61.7	54.3	60.3		62.0	61.8	Southward .	1	S. & K. S. 10	
	Noon.	.205	68.4	71.5	57.6	71.4		70.8	70.2	S.W. . .	2	K. S & C.S.10	
	3 P. M.	.183	70.0	74.5	57.4	73.4		74.0	73.5	S.W. . .	4	K.S. & C.S.10	Clouds from N.W.
	6	.192	70.0	67.8	55.4	66.0		67.4	67.6	S.W. . .	4	K.S. & C.S.10	
	9	.228	68 2	61.6	52.5	60.8		62.3	62.5	S.W. . .	3	S. & K. S. 10	
	Midn't.	28.232	66.5	60.3	51.3	59.2	50.8	60.6	61.0	S.W. . .	5	S. & K. S. 10	Max. temp., 74°.5; min., 58°.7.

* Some few drops of rain fell in the early morning—not enough to measure—though the pavement was moist at 6 A. M.

FEBRUARY, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register.			Direction.	Force.		
							Sky.	Max.	Min.				
		Inches.	°	°	°	°	°	°	°				
14	6 A. M.	28.147	67.5	61.2	56.7	61.7		61.2	60.7	Calm . .	0	C. 4 . . .	
	9	.174	68.7	68.0	59.4	68.2		68.4	68.0	S.W. . .	1	C. 4 . . .	
	Noon.	.175	70.9	75.8	63.9	65.5		75.5	75.2	S.W. . .	3	C. 3 . . .	
	3 P. M.	.160	72.6	77.8	64.4	77.4		78.8	79.2	S.W. . .	4	C. 3 . . .	
	6	.156	73.2	74.1	62.0	72.9		74.6	74.4	S.W. . .	4	C. 2 . . .	
	9	.167	71.0	64.0	56.9	63.5		66.4	66.5	S.W. . .	1	0	Some few C.
	Midn't	.164	67.3	60.6	55.6	60.3	54.4	63.0	63.0	S.W. . .	1	0	Do. Max. temp., 78°.7; min., [57°.8.
15	6 A. M.	.190	64.0	57.9	54.0	56.7		57.3	57.3	Calm . .	0	0	
	9	.204	67.2	65.0	59.0	66.0		65.1	64.8	Calm . .	0	0	
	Noon.	.180	74.7	76.3	64.9	77.4		75.5	75.0	S.W. . .	2	0	
	3 P. M.	.141	72.6	82.5	64.1	81.5		81.3	81.3	S.W. . .	4	0	
	6	.126	73.6	77.7	62.4	76.0		78.0	78.3	S.W. . .	3	0	
	9	.143	71.0	68.5	58.1	66.4		69.6	69.0	N. eastward	Air.	0	
	Midn't.	.155	69.6	64.0	57.2	63.7	56.4	66.5	66.4	Northward .	Air.	0	Max. temp., 81°.4; min., 56°.7.
16	6 A. M.	.206	67.5	60.5	54.5	59.9		59.4	59.2	Calm . .	0	0	
	9	.219	68.5	70.0	60.3	69.5		69.8	69.4	Southward .	Air.	0	
	Noon.	.211	70.8	78.0	63.9	76.7		77.2	76.8	S.W. . .	1	0	
	3 P. M.	.194	76.3	84.1	65.3	82.0		82.7	82.7	S.W. . .	4	0	
	6	.162	76.0	81.7	65.1	80.1		81.7	81.7	S.W. . .	4	0	
	9	.175	74.5	72.0	62.6	71.4		73.0	72.4	Calm . .	0	0	
	Midn't.	.153	72.8	68.0	60.3	69.5	53.5	70.0	69.8	Northward .	Air.	0	Max. temp., 84°.2; min., 57°.6.
17	6 A. M.	.140	67.5	62.8	56.5	61.7		61.9	61.5	Calm . .	0	0	
	9	.161	70.4	74.2	62.4	73.8		73.4	73.0	S.W. . .	1	0	
	Noon.	.138	72.8	82.7	65.3	82.0		81.4	81.3	S.W. . .	2	0	
	3 P. M.	.122	75.3	85.5	65.3	84.0		85.3	86.2	S.W. . .	4	0	
	6	.135	76.0	79.3	63.9	78.1		79.6	79.6	S.W. . .	4	0	
	9	.146	73.2	71.4	59.9	70.2		72.6	72.4	S.W. . .	1	0	
	Midn't.	.129	72.4	67.0	59.2	65.7	54.4	69.2	68.8	Calm . .	0	0	Max. temp., 85°.2; min., 60°.0.
18	6 A. M.	.144	69.2	64.2	58.3	63.7		63.4	62.8	Calm . .	0	0	
	9	.166	70.3	70.9	62.6	71.4		70.8	70.4	S.W. . .	2	0	
	Noon.	.143	72.3	77.5	65.5	77.0		76.8	76.5	S.W. . .	3	0	
	3 P. M.	.125	75.0	83.2	67.3	81.5		82.3	82.6	S.W. . .	3	0	K. over Andes.
	6	.110	76.0	80.7	66.4	78.8		80.7	80.7	S.W. . .	2	0	Do.
	9	.128	75.0	71.5	62.6	71.0		73.5	73.5	Calm . .	0	0	
	Midn't.	.109	72.6	66.6	60.3	66.6	55.0	66.8	66.7	N.W. . .	Air.	0	Max. temp., 83°.2; min., 59°.8.
19	6 A. M.	.084	67.3	63.2	57.6	62.0		62.3	62.0	Calm . .	0	0	
	9	.118	70.1	73.5	64.6	74.0		72.7	72.3	S.W. . .	Air.	0	Smoky.
	Noon.	.120	73.3	82.2	67.1	81.7		80.8	80.7	S.W. . .	3	0	
	3 P. M.	.115	76.0	81.5	66.6	80.5		81.3	81.4	S.W. . .	5	0	
	6	.136	74.0	72.1	62.2	69.8		73.0	73.0	S.S.W. . .	4	0	
	9	.147	70.4	61.4	57.6	61.2		64.8	65.0	Westward .	1	0	
	Midn't.	.131	69.4	59.0	56.7	59.2	55.4	62.2	62.4	N. eastward	Air.	0	Max. temp., 82°.7; min., 59°.8.
20	6 A. M.	.181	68.0	62.6	57.6	61.2		62.8	62.4	Calm . .	0	Mist 10 . .	
	9	.220	67.8	62.5	58.7	62.0		63.5	63.0	Calm . .	0	K. & K. S. 10	
	Noon.	.198	69.9	71.0	62.6	69.3		69.0	68.6	S.W. . .	1	K. 7 . . .	
	3 P. M.	.179	71.8	74.5	64.4	73.6		74.4	74.4	S.W. . .	3	0	K. over Andes.
	6	.178	72.7	72.5	61.7	71.4		73.0	72.6	S.W. . .	2	0	
	9	.201	71.3	66.5	59.7	65.3		67.8	67.4	N. eastward	Air.	0	
	Midn't.	28.175	69.4	61.9	57.2	61.5	54.8	64.6	64.5	N. eastward	Air.	0	Max. temp., 75°.4; min., 56°.8.

FEBRUARY, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register.			Direction.	Force.		
							Sky.	Max.	Min.				
		Inches.	°	°	°	°	°	°	°				
7	6 A. M.	28.180	66.6	63.4	58.5	63.3		62.6	62.2	Calm . .	0	0	
	9	.188	68.8	75.7	65.3	76.5		73.8	73.4	N.E. . . .	1	0	
	Noon.	.186	71.7	82.0	66.4	81.7		80.8	80.7	S.W. . .	2	0	
	3 P. M.	.164	74.5	86.0	67.1	84.6		84.8	85.7	W.S.W. .	6	K. 1 . . .	Around the horizon.
	6	.173	75.0	81.2	64.6	79.0		80.7	81.0	Westward .	3	0	K. over Andes.
	9	.198	72.4	69.3	62.0	69.1		72.2	71.5	Eastward .	Air.	0	
	Midn't.	.176	71.7	67.8	59.9	66.8	55.7	69.4	69.0	N.N.W. . .	1	0	Max. temp., 81°.3; min., 59°.7.
8	6 A. M.	.181	68.8	65.0	58.5	64.1		64.3	64.2	Calm . .	0	0	Late.
	9	.182	70.3	74.0	62.2	73.6		72.6	72.2	S.W. . .	1	0	
	Noon.	.178	73.6	80.2	65.1	79.5		78.8	78.7	S.W. . .	3	0	
	3 P. M.	.153	76.8	82.5	65.5	80.3		80.7	80.8	S.W. . .	5	0	K. heavy over Andes.
	6	.152	75.0	75.1	62.8	72.9		74.8	74.5	S.W. . .	3	0	
	9	.176	71.5	65.2	58.7	64.4		66.5	66.3	S.W. . .	1	0	
	Midn't.	.140	67.2	61.7	57.6	60.3	56.0	63.7	63.7	Southward .	1	0	Max. temp., 84°.3; min., 60°.3.
9	6 A. M.	.159	64.6	65.1	60.1	64.4		66.0	65.6	Calm . .	0	Mist 10 . .	Taken at 7 A. M.
	9	.182	65.3	63.3	59.0	62.2		63.5	63.3	S.W. . .	3	Mist 10 . .	Ground wet at 7 A. M., some little rain
	Noon.	.208	66.5	66.0	61.2	66.8		65.5	65.2	Calm . .	0	K. & K. S. 10	having fallen during the night; mea-
	3 P. M.	.172	69.0	73.5	62.8	71.0		73.3	73.3	S.W. . .	3	K. & K. S. 9	sured at 9 A. M. 0.090 in.
	6	.158	69.8	68.3	60.1	66.2		68.0	67.7	W.S.W. . .	4	K. & K.S. 8.	
	9	.182	65.6	62.5	57.4	62.2		62.8	62.5	W.S.W. .	3	K. & K. S. 10	
	Midn't.	.148	66.7	61.5	57.4	61.2	55.8	62.7	62.6	Calm . .	0	K. & K. S. 10	Max. temp., 74°.4; min., 61°.4.
10	6 A. M.	.190	66.0	62.5	56.7	61.7		63.2	62.6	Calm . .	0	S. & K. S. 10	
	9	.220	66.7	67.0	58.5	65.7		66.3	65.8	S.W. . .	1	K. & K. S. 7.	
	Noon.	.230	68.4	71.2	59.2	70.8		70.6	70.5	S.W. . .	3	K. 5 . . .	
	3 P. M.	.198	70.0	76.8	60.1	74.7		75.4	75.0	S.W. . .	4	K. 3 . . .	Around horizon.
	6	.192	70.8	73.2	58.7	71.4		73.4	73.4	S.W. . .	3	0	K. over mountains to eastward.
	9	.216	68.5	64.0	55.9	63.5		66.3	66.0	Calm . .	0	0	
	Midn't.	.195	67.3	61.6	54.3	60.3	53.6	64.2	63.8	N. eastward	Air.	0	Max. temp., 76°.4; min., 59°.6.
11	6 A. M.	.169	64.5	56.2	52.5	57.4		55.2	55.0	Calm . .	0	0	C. over Andes.
	9	.173	66.5	69.2	58.1	69.3		68.4	67.8	Calm . .	0	0	
	Noon.	.162	68.8	77.5	60.8	77.0		76.4	76.0	S.W. . .	2	0	
	3 P. M.	.125	70.4	84.4	58.1	83.8		82.8	82.8	S.W. . .	1	0	K. over Andes and C. S. to S'd.
	6	.128	72.8	81.8	60.1	80.0		81.3	81.3	S.W. . .	2	C. & C. S. 1	Do. do.
	9	.151	71.8	69.8	57.6	65.7		72.2	71.6	N. eastward	Air.	0	
	Midn't.	.136	70.6	65.4	55.4	64.9	49.5	63.2	62.7	N. eastward	Air.	0	Max. temp., 84°.3; min., 53°.8.
12	6 A. M.	.148	66.7	59.0	52.5	58.7		57.5	57.4	Calm . .	0	0	
	9	.202	68.7	72.3	59.0	72.9		71.6	71.0	S.W. . .	2	0	
	Noon.	.194	71.4	79.9	60.6	79.0		78.5	78.4	S.W. . .	3	0	K. over mountains to eastward.
	3 P. M.	.161	72.0	81.7	62.6	80.5		81.4	82.0	S.W. . .	4	C. K. 1 . .	Over Andes.
	6	.162	73.2	77.7	61.2	74.5		76.8	76.7	S.W. . . .	4	C. K. 4 . .	
	9	.195	71.0	66.9	57.9	65.7		69.0	68.2	S. eastward.	1	C.K. & C.S.8	
	Midn't.	.187	68.7	62.6	56.3	61.5	50.7	65.5	64.7	S. eastward.	1	C. & C. S. 4	Max. temp., 82°.8; min., 56°.5.
13	6 A. M.	.224	67.0	64.9	57.9	64.4		65.0	64.7	Calm . .	0	0	Taken at 7 A. M.
	9	.231	68.7	72.0	61.2	72.7		70.7	70.4	S.W. . .	1	0	
	Noon.	.224	72.0	77.4	63.3	77.4		77.1	76.8	S.W. . .	2	0	K. over Andes.
	3 P. M.	.211	76.0	81.5	63.5	83.5		81.0	81.2	S.W. . .	3	0	Do.
	6	.207	74.4	75.8	59.4	74.7		76.3	76.5	S.W. . .	2	0	Do.
	9	.200	70.0	66.5	58.1	66.6		68.7	68.4	S.W. . .	1	0	
	Midn't.	28.173	70.4	63.6	56.7	62.0	52.8	66.4	65.8	Eastward .	Air.	0	Max. temp., 80°.7; min., 57°.4.

FEBRUARY, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register.			Direction.	Force.		
							Sky.	Max.	Min.				
		Inches.	°	°	°	°	°	°	°				
28	6 A. M.	28.120	64 0	58.8	51.1	57.4		57.3	57.0	Calm . .	0	0	Smoky.
	9	.127	68.4	71.0	57 2	71.0		70.5	69.7	Calm . .	0	0	Do.
	Noon.	.110	70.3	80.5	62.0	79.5		79.2	78.6	S.W. . .	1	0	Do.
	3 P. M.	.103	73.5	84.2	62.6	83.0		84.4	83.7	S.W. . .	3	0	Smoky; K. over Andes.
	6	.114	74.8	77.0	61.0	75.8		77.6	77.5	S.W. . .	2	0	Do do.
	9	.147	72.4	68.7	57.4	66.4		69.0	68,8	Eastward .	1	0	Frequent lightning over the Andes.
	Midn't.	28.152	70.0	62.0	53.8	61.5	49.3	64.0	64,0	Calm . .	0	0	Max. temp., 84°.3; min., 56°.3.

MARCH, 1851.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register.			Direction.	Force.		
							Sky.	Max.	Min.				
		Inches.	°	°	°	°	°	°	°				
1	6 A. M.	28.148	66.0	58.0	51.1	56.7		56.4	56.3	Calm . .	0	0	Smoky; C. K. over Andes.
	9	.142	67.6	68.8	59.2	69.1		68.0	67.2	Calm . .	0	0	Do do.
	Noon.	.134	70.0	75.4	61.0	74.3		75.1	74.4	S.W. . .	1	0	Smoky; C. K. heavy over Andes.
	3 P. M.	.093	72.9	82.4	63.0	81.5		82.7	83.0	S.W. . .	4	0	Smoky; C. K. over Andes.
	6	.111	74.0	77.5	60.8	76.2		77.7	77.6	S.W. . .	1	0	Do do.
	9	.150	70.7	67.0	56.5	66.6		68.8	68.8	S.W. . .	2	0	
	Midn't.	.150	69.3	62.8	55.4	62.6	49.5	64.4	64.7	N.W. . .	1	0	Max. temp., 83°.3; min., 54°.7.
2	6 A. M.	.158	64.7	56.6	50.4	55.6		55.2	55.0	Calm . .	0	0	K. & C. K. over Andes.
	9	.178	68.0	67.5	57.9	67.3		67.0	66.5	S.W. . .	1	0	K. & C. K. over Andes; smoky.
	Noon.	.159	69.8	75.1	61.0	74.3		74.7	73.8	S.W. . .	2	0	Do do.
	3 P. M.	.145	72.6	79.3	62.6	78.0		80.0	80.0	S.W. . .	3	K. & C. K. 1	Do do.
	6	.139	72.7	75.6	61.5	74.3		76.2	76.2	S.W. . .	2	0	Do do.
	9	.168	71.7	67.7	58.7	66.2		68.6	68.4	Calm . .	0	0	Frequent lightning over the Andes.
	Midn't.	.110	69.5	62.0	55.9	63.3	55.1	63.3	62.0	Calm . .	0	0	Max. temp., 80°.5; min., 54°.6.
3	6 A M.	.133	66.0	57.3	52.0	55.9		56.2	55.8	Calm . .	0	0	Smoky.
	9	.140	66.0	60.6	56.7	61.0		61.9	61.0	Calm . .	0	0	Do.
	Noon.	.092	69.0	72.7	62.2	71.8		72.1	71.5	S.W. .	2	0	Do.
	3 P. M.	.052	71.8	78.3	63.9	77?8		78.0	78.1	S.W. . .	2	0	
	6	.052	72 5	72.0	60.8	70.5		72.5	72.1	S.W. . .	3	0	K. over Andes.
	9	.076	69.4	59.5	54.7	60.1		61.7	62.0	S.E. . . .	1	0	
	Midn't.	.071	67.0	56.0	52.7	55.9	50.5	58.2	58.6	Southward .	Air.	0	Max. temp., 79°.2; min., 54°.5.
4	6 A. M.	.059	61.6	56.5	52.0	54.7		56.6	56.5	Calm . .	0	Fog 10 . .	An earthquake at 8h. 55m. A. M. It
	9	.066	61.4	55.8	53.6	55.4		57.7	57.7	Calm . .	0	K.S. & fog 10	was quite heavy, and with consid-
	Noon.	.144	63.7	57.5	55.2	57.2		58.6	58.8	S.W. . .	1	Rain . . .	erable accompanying and succeed-
	3 P. M.	.130	64.3	60.0	56.3	59.4		61.5	61.0	Calm . .	0	K. & K. S. 10	ing noise. The motion was appa-
	6	.131	64.6	59.7	55.9	58.7		60.8	60.6	Calm . .	0	S. & K. S. 10	rently from the N'd. J. M. G.
	9	.132	64.7	59.0	56.1	59.0		60.4	60.4	Calm . .	0	S. & K. S. 10	
	Midn't.	28.120	64.6	58.5	55.9	58.5		59.8	59.8	Calm . .	0	Rain . . .	Max. temp., 62°.0; min., 55°.5.

MARCH, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register.			Direction.	Force.		
							Sky.	Max.	Min.				
		Inches.	°	°	°	°	°	°	°				
5	6 A. M.	28.136	63.8	58.8	55.4	57.9		58.7	58.5	Calm . .	0	Rain . . .	Late. Rain during day 0.352 in.
	9	.159	64.0	60.0	56.7	59.2		61.3	61.0	Westward .	1	Rain . . .	
	Noon.	.160	65.2	71.0	60.1	67.5		67.8	67.3	Calm . .	0	K. & K. S. 9	
	3 P. M.	.164	67.0	69.0	58.1	67.5		69.0	69.5	W.N.W. .	3	K. S. 9 . .	
	6	.227	66.2	62.5	56.9	61.5		62.5	62.4	N.W. . .	1	Rain . . .	
	9	.265	65.0	58.5	55.2	57.9		59.5	58.8	N.E. . .	2	K. & K. S. 10	
	Midn't.	.212	65.0	58.7	54.3	58.7	59.6	59.8	59.0	N.E. . .	3	K. & K. S. 10	Max. temp., 71°.4; min., 56°.5.
6	6 A. M.												At midnight lightning in the S.W.
	9	.195	63.1	63.7	57.6	63.9		63.8	63.2	W.N.W. .	1	C. 1 . . .	About W. horizon.
	Noon.	.112	66.0	71.0	60.8	70.2		69.5	70.2	N.N.W. .	1	C. K. 8 . .	
	3 P. M.	.150	66.7	69.2	60.1	68.2		69.5	68.8	Westward .	1	C. K. 8 . .	
	6	.144	67.0	66.1	58.1	65.3		66.9	66.2	Westward .	Air.	K. 9 . . .	
	9	.116	64.5	59.2	55.2	58.1		60.9	60.0	S.S.W. . .	1	0	
	Midn't.	.086	62.2	56.0	52.7	54.7	48.7	56.8	56.0	S.E. . . .	1	0	Max. temp., 71°.0; min., 53°.2.
7	6 A. M.												
	9	.194	64.5	65.5	59.9	65.3		65.6	65.0	W.S.W. .	Air.	C. 2 . . .	
	Noon.	.118	67.0	74.0	59.7	72.3		72.5	72.0	S. westward	2	C. K. 1 . .	
	3 P. M.	.104	68.5	76.0	63.0	77.0		77.3	77.2	S.W. . .	3	K. 1 . . .	Over the cordilleras.
	6	.116	70.2	71.5	60.3	70.2		72.3	72.0	S.W. . .	3	K. 1 . . .	Over Andes.
	9	.146	68.0	61.0	56.3	60.8		63.5	63.0	Southward .	1	0	At 11 P. M. lightning in the N.E.
	Midn't.	.142	65.3	56.0	54.7	57.6	48.3	60.5	59.5	W.N.W. .	2	0	Max. temp., 78°.2; min., 56°.5.
8	6 A. M.												
	9	.224	66.0	62.8	58.1	61.7		63.2	62.7	N.E . . .	1	K. & K. S. 10	
	Noon.	.224	65.0	69.4	60.8	67.5		70.3	70.3	Westward .	Air.	K. 6. . .	
	3 P. M.	.184	67.6	74.0	62.4	73.2		73.7	73.0	W.S.W. .	3	K. 2 . . .	Over both cordilleras.
	6	.176	68.5	72.3	60.8	70.2		72.3	71.9	S.W. . .	1	K. 1 . . .	Over Andes.
	9	.170	67.3	64.0	57.2	61.2		65.6	65.0	W.S.W. .	2	0	
	Midn't.	.146	65.5	59.6	54.5	58.5	51.3	60.1	59.8	N.W. . .	1	0	Max. temp., 74°.0; min., 57°.5.
9	6 A. M.												
	9	.160	65.8	66.1	58.5	65.5		65.5	64.8	W.S.W. .	1	0	Smoky.
	Noon.	.160	67.5	75.6	61.7	74.7		74.5	74.0	S.W. . .	1	0	
	3 P. M.	.142	70.3	81.7	62.6	80.1		81.0	81.0	S.W. . .	3	K. 1 . . .	Over both cordilleras.
	6	.159	74.5	76.2	61.7	74.3		76.5	75.5	W.S.W. .	2	K. . . .	Over Andes.
	9	.210	69.5	67.2	55.4	66.0		67.0	67.5	S. eastward	1	0	Observations made at 8h. 30m.
	Midn't.	.186	66.5	62.0	55.6	61.0	47.5	62.9	62.2	N.W. . .	Airs.	0	Max. temp., 81°.8; min., 53°.7.
10	6 A. M.												
	9	.236	67.1	67.2	59.2	67.1		66.7	66.0	W.S.W. .	1	0	Very smoky.
	Noon.	.204	68.4	76.5	62.6	75.2		75.0	74.2	S.W. . .	1	0	Smoky.
	3 P. M.	.178	72.2	81.7	63.5	80.2		80.3	80.0	S.W. . .	3	0	Do.
	6	.172	72.0	76.5	62.0	75.0		76.7	76.0	W.S.W. .	2	0	K. over Andes.
	9	.188	70.1	67.5	59.2	67.1		68.9	68.5	W. . . .	Airs.	0	
	Midn't.	.194	67.5	62.2	55.2	60.6	50.0	63.5	63.0	W. . . .	1	0	Max. temp., 80°.9; min., 53°.0.
11	6 A. M.												
	9	.194	66.2	69.0	57.4	68.0		69.2	68.8	S.W. . .	1	0	Smoky.
	Noon.	.218	69.2	78.0	63.3	76.2		77.5	77.7	S.W. . .	1	0	Do.
	3 P. M.	.195	72.0	82.5	63.9	81.3		81.9	81.9	S.W. . .	3	C. K. 8 . .	
	6	.181	73.0	78.8	62.6	77.7		78.7	78.1	W.S.W. .	2	K. S. 10 .	
	9	.196	71.7	70.7	59.4	70.2		71.2	70.5	Southward .	1	C. K. 9 . .	
	Midn't.	28.180	70.5	66.5	57.9	65.1	50.3	67.2	66.5	N.N.W. .	1	K. & C. S. 9	Max. temp., 82°.3; min., 53°.0.

MARCH, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register.			Direction.	Force.		
							Sky.	Max.	Min.				
		Inches.	°	°	°	°	°	°	°				
12	6 A. M.												
	9	28.164	68.2	71.3	61.5	71.4		69.6	69.0	S'd and W'd	Airs.	K. & C. S. 10	
	Noon.	.186	70.0	74.0	61.5	72.9		73.5	73.0	S. W'd . .	1	C. S. 9 . .	
	3 P. M.	.184	71.0	77.0	59.2	75.6		78.6	78.0	S. W'd . .	1	0	C. S. over Andes.
	6	.213	70.6	69.5	53.4	68.2		71.1	70.2	S.W. . .	2	0	K. over Andes.
	9	.247	67.0	60.0	51.5	60.8		62.0	62.0	Southward .	1	0	
	Midn't.	.254	63.0	56.7	49.7	56.5	49.1	58.7	57.7	S.E. . . .	2	0	Max. temp., 78°.7; min., 57°.1.
13	6 A. M.												
	9	.220	62.4	64.4	54.0	64.1		63.4	62.8	Southward .	Airs.	C. 8 . . .	
	Noon.	.212	65.5	72.0	56.7	71.6		71.3	70.8	Southward .	Airs.	C. 8 . . .	
	3 P. M.	.202	68.3	75.0	58.5	74.0		75.6	75.3	Southward .	1	C. 9 . . .	
	6	.198	69.0	69.6	55.9	68.7		70.4	69.6	S.S.W. . .	2	K. S. 10 . .	
	9	.230	67.0	64.0	52.5	63.0		65.0	64.5	Southward .	Airs.	K. S. 10 .	
	Midn't.	.220	65.8	62.3	51.3	61.2	43.3	63.0	62.5	Calm . .	0	K. S. 10 . .	Max. temp., 78°.6; min., 58°.5.
14	6 A. M.												
	9	.190	65.1	67.8	56.3	67.1		68.3	67.5	N.W. . .	1	C. K. & K. 5	
	Noon.	.174	67.5	74.8	58.7	71.0		73.9	73.0	N'd and E'd	Airs.	0	
	3 P. M.	.130	71.0	79.0	60.3	78.0		78.0	77.5	S.W'd . .	2	C. & C. K. 1	Over Andes and to southeastward.
	6	.139	71.4	75.5	59.2	74.6		75.9	75.3	W.S.W. .	2	0	K. over Andes.
	9	.168	69.0	66.0	56.3	65.7		67.0	66.7	Calm . .	0	0	
	Midn't.	.148	67.9	69.1	53.4	60.1	48.6	63.0	62.9	Northward .	Airs.	0	Max. temp., 76°.5; min., 58°.7.
15	6 A. M.												
	9	.130	65.0	68.2	58.3	68.7		68.3	67.8	Northward .	Airs.	0	Smoky.
	Noon.	.112	68.0	77.7	62.0	76.0		75.9	75.2	S.W. . .	1	0	Smoky.
	3 P. M.	.088	71.0	83.7	62.2	81.0		82.0	82.1	S.W. . .	2	0	K. over Andes.
	6	.104	72.0	74.0	61.7	73.2		75.7	75.2	S.W. . .	2	K. 1 . . .	Over Andes and horizon.
	9	.126	69.8	64.3	55.4	63.9		66.2	65.9	S.W. . .	Airs.	C. S. 2 . .	
	Midn't.	.112	68.0	61.7	55.2	61.5	48.0	62.9	62.0	N'd and W'd	Airs.	C. 7 . . .	Max. temp., 82°.0; min., 56°.1.
16	6 A. M.												
	9	.132	63.0	56.6	53.1	56.3		59.0	58.2	W.S.W. .	1	C. S. 10 . .	
	Noon.	.144	65.5	67.5	59.0	67.3		67.7	67.0	S.W. by W.	2	C. & C. S. 8	K. over Andes.
	3 P. M.	.144	67.5	70.0	59.2	69 3		71.5	71.5	S. W'd . .	2	C. & C. S. 7	
	6	.136	68.0	64.5	56 5	63.5		66.4	65.4	S.W. . .	3	C. 3 . . .	
	9	.148	65.7	68.4	53.6	58.1		60.1	59.9	S.W. . .	1	C. 3 . . .	[min., 50.°2.
	Midn't.	.140	64.5	56.3	51.8	55.4	48.8	57.4	57.0	Calm . .	0	0	C. about horizon. Max. temp., 72°.1;
17	6 A. M.												
	9	.166	63.0	62.6	56.3	61.7		61.8	61.1	N.N.E . .	1	C. 1 . . .	
	Noon.	.174	65.0	69.7	60.3	68.0		69.2	68.4	N.N.E. . .	1	0	K. over Andes.
	3 P. M.	.150	67.5	76.4	62.8	75.0		75.3	74.8	S.W. . .	2	0	Do.
	6	.154	69.5	70.5	60.1	70.0		73.6	72.0	W.S.W. .	2	0	Do.
	9	.164	67.2	63.8	57.2	63.0		64.8	64.5	S'd and E'd.	Airs.	0	
	Midn't.	.158	66.3	60.6	54.5	59.7	47.0	61.7	61 2	N.N.W. .	1	0	Max. temp., 77°.5; min., 54°.0.
18	6 A. M.												
	9	.164	63.2	65.4	57.9	64.4		64.0	63.5	Northward .	Airs.	0	C. over Andes.
	Noon.	.164	67.0	75.5	62.2	73.6		73.0	72.5	S. E'd . .	Airs.	0	
	3 P. M.	.137	70.0	81.5	62.2	80.0		79.5	79.0	S.W. . .	2	0	K. over Andes.
	6	.145	71.0	74.5	60.8	72.7		74.5	75.2	S.W. . .	1	0	Do.
	9	.184	69.0	64.7	57.2	63 7		65.2	65.0	N.E'd . .	1	0	
	Midn't.	28.170	67.5	62.2	55.4	61.0	48.7	62.8	62.0	N.E'd . .	1	0	Max. temp., 79°.8; min., 56°.0.

MARCH, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register.			Direction.	Force.		
							Sky.	Max.	Min.				
		Inches.	°	°	°	°	°	°	°				
5	6 A. M.	28.136	63.8	58.8	55.4	57.9		58.7	58.5	Calm . .	0	Rain . . .	Late. Rain during day 0.352 in.
	9	.159	64.0	60.0	56.7	59.2		61.3	61.0	Westward .	1	Rain . . .	
	Noon.	.160	65.2	71.0	60.1	67.5		67.8	67.3	Calm . .	0	K. & K. S. 9	
	3 P. M.	.164	67.0	69.0	58.1	67.5		69.0	69.5	W.N.W. .	3	K. S. 9 . .	
	6	.227	66.2	62.5	56.9	61.5		62.5	62.4	N.W. . .	1	Rain . . .	
	9	.265	65.0	58.5	55.2	57.9		59.5	58.8	N.E. . .	2	K. & K. S. 10	
	Midn't.	.212	65.0	58.7	54.3	58.7	52.8	59.8	59.0	N.E. . .	3	K. & K. S. 10	Max. temp., 71°.4; min., 56°.5.
6	6 A. M.												At midnight lightning in the S.W.
	9	.105	63.1	63.7	57.6	63.9		63.8	63.2	W.N.W. .	1	C. 1 . . .	About W. horizon.
	Noon.	.112	66.0	71.0	60.8	70.2		69.5	70.2	N.N.W. .	1	C. K. 8 . .	
	3 P. M.	.150	66.7	69.2	60.1	68.2		69.5	68.8	Westward .	1	C. K. 8 . .	
	6	.144	67.0	66.1	58.1	65.3		66.9	66.2	Westward .	Air.	K. 9 . . .	
	9	.116	64.5	59.2	55.2	58.1		60.9	60.0	S.S.W. . .	1	0	
	Midn't.	.066	62.2	56.0	52.7	54.7	48.7	56.8	56.0	S.E. . . .	1	0	Max. temp., 71°.0; min., 53°.2.
7	6 A. M.												
	9	.134	64.5	65.5	59.9	65.3		65.6	65.0	W.S.W. .	Air.	C. 2 . . .	
	Noon.	.118	67.0	74.0	59.7	72.3		72.5	72.0	S. westward	2	C. K. 1 . .	
	3 P. M.	.104	68.5	76.0	63.0	77.0		77.3	77.2	S.W. . .	3	K. 1 . . .	Over the cordilleras.
	6	.116	70.2	71.5	60.3	70.2		72.3	72.0	S.W. . .	3	K. 1 . . .	Over Andes.
	9	.146	68.0	61.0	56.3	60.8		63.5	63.0	Southward .	1	0	At 11 P. M. lightning in the N.E.
	Midn't.	.142	65.3	56.0	54.7	57.6	48.3	60.5	59.5	W.N.W. .	2	0	Max. temp., 76°.2; min., 56°.5.
8	6 A. M.												
	9	.224	66.0	62.8	58.1	61.7		63.2	62.7	N.E . . .	1	K. & K. S. 10	
	Noon.	.224	65.0	69.4	60.8	67.5		70.3	70.3	Westward .	Air.	K. 6. . .	
	3 P. M.	.184	67.6	74.0	62.4	73.2		73.7	73.0	W.S.W. .	3	K. 2 . . .	Over both cordilleras.
	6	.176	68.5	72.3	60.8	70.2		72.3	71.9	S.W. . .	1	K. 1 . . .	Over Andes.
	9	.170	67.3	64.0	57.2	61.2		65.6	65.0	W.S.W. .	2	0	
	Midn't.	.146	65.5	59.6	54.5	58.5	51.3	60.1	59.8	N.W. . .	1	0	Max. temp., 74°.0; min., 57°.5.
9	6 A. M.												
	9	.160	65.8	66.1	58.5	65.5		65.5	64.8	W.S.W. .	1	0	Smoky.
	Noon.	.160	67.5	75.6	61.7	74.7		74.5	74.0	S.W. . .	1	0	
	3 P. M.	.142	70.3	81.7	62.6	80.1		81.0	81.0	S.W. . .	3	K. 1 . . .	Over both cordilleras.
	6	.159	74.5	76.2	61.7	74.3		76.5	75.5	W.S.W. .	2	K. . . .	Over Andes.
	9	.210	69.5	67.2	55.4	66.0		67.0	67.5	S. eastward	1	0	Observations made at 8h. 30m.
	Midn't.	.186	66.5	62.0	55.6	61.0	47.5	62.9	62.2	N.W. . .	Airs.	0	Max. temp., 81°.8; min., 53°.7.
10	6 A. M.												
	9	.226	67.1	67.2	59.2	67.1		66.7	66.0	W.S.W. .	1	0	Very smoky.
	Noon.	.204	68.4	76.5	62.6	75.2		75.0	74.2	S.W. . .	1	0	Smoky.
	3 P. M.	.178	72.2	81.7	63.5	80.2		80.3	80.0	S.W. . .	3	0	Do.
	6	.172	72.0	76.5	62.0	75.0		76.7	76.0	W.S.W. .	2	0	K. over Andes.
	9	.188	70.1	67.5	59.2	67.1		68.9	68.5	W. . . .	Airs.	0	
	Midn't.	.194	67.5	62.2	55.2	60.6	50.0	63.5	63.0	W. . . .	1	0	Max. temp., 80°.0; min., 53°.0.
11	6 A. M.												
	9	.194	66.2	69.0	57.4	68.0		69.2	68.8	S.W. . .	1	0	Smoky.
	Noon.	.218	69.2	78.0	63.3	76.2		77.5	77.7	S.W. . .	1	0	Do.
	3 P. M.	.195	72.0	82.5	63.9	81.3		81.9	81.9	S.W. . .	3	C. K. 8 . .	
	6	.181	73.0	78.8	62.6	77.7		78.7	78.1	W.S.W. .	2	K. S. 10 .	
	9	.196	71.7	70.7	59.4	70.2		71.2	70.5	Southward .	1	C. K. 9 . .	
	Midn't.	28.180	70.5	66.5	57·9	65.1	50.3	67.2	66.5	N.N.W. .	1	K. & C. S. 9	Max. temp., 82°.3; min., 53°.0.

MARCH, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Max.	Min.	Direction.	Force.		
		Inches.	°	°	°	°	°	°	°				
25	6 A. M.												
	9	28.040	62.7	66.0	54.7	65.7		64.6	64.0	N.E. . .	Airs.	0	
	Noon.	.070	68.3	81.0	65.1	79.0		77.7	77.3	W.S.W. .	1	0	Smoky.
	3 P. M.	.074	72.2	87.4	65.1	85.3		84.4	84.4	S.W. . .	2	0	
	6	.080	72.8	76.2	59.9	73.4		77.0	76.2	E.N.E. . .	Airs.	0	
	9	.126	70.0	66.0	55.4	64.4		66.6	66.2	E.N.E. . .	Airs.	0	
	Midn't.	.110	67.7	61.0	52.7	59.0	44.1	61.7	61.0	N.E. . . .	Airs.	0	Self-registers accidentally disturbed.
26	6 A. M.												
	9	.124	64.0	65.4	56.5	65.3		64.6	64.0	W.S.W. .	1	C. 5 . . .	Smoky. A slight earthquake at 8h.
	Noon.	.132	67.5	73.5	60.8	72.3		72.5	72.0	W.S.W . .	2	C. & C. S. 3	18m. A. M. J. M. G.
	3 P. M.	.138	69.2	74.5	61.5	73.8		75.0	75.0	W.S.W. .	2	C. 8 . . .	
	6	.126	69.8	67.6	59.4	66.4		68.8	68.0	N.W. . .	2	K. & C. S. 9	
	9	.136	68 0	63.5	57.6	63.0		64.5	64.5	Calm . .	0	C. & C. S. 6	
	Midn't.	.122	67.0	61.0	55.2	59.4		63.0	61.5	Eastward .	1	K. & C. S. 8	Max. temp., 75°.1; min., 56°.0.
27	6 A. M.												
	9	.152	64.5	65.0	58.5	63.9		64.7	64.0	N. . . .	1	C. 9 . . .	Smoky.
	Noon.	.162	67.3	73.5	62.2	72.5		72.8	72.0	S.W. . .	2	C. 5 . . .	
	3 P. M.	.144	69.2	75.8	63.3	75.0		76.0	75.8	S.W. . .	1	C. 2 . . .	
	6	.136	70.0	68.1	57.9	67.3		69.7	69.0	W.S.W. .	2	K. & C. 2 .	
	9	.158	67.5	60.7	54.5	59.4		62.8	63.5	Calm . .	0	0	K. over Andes and horizon.
	Midn't.	.122	67.0	61.0	55.2	59.4	46.6	63.0	61.5	N.E. . . .	1	0	Max. temp., 75°.1; min., 56°.0.
28	6 A. M.												
	9	.120	63.7	63.7	57.4	63.3		63.1	62.3	N.N.W. .	1	0	Smoky.
	Noon.	.116	66.5	71.0	60.6	70.2		70.5	70.0	W.S.W. .	2	0	
	3 P. M.	.088	69.3	76.0	64.6	75.2		75.5	75.0	S. westward	3	0	
	6	.104	69.7	71.9	58.7	70.5		72.6	72.0	W.S.W. .	2	C. 2 . . .	
	9	.120	68.0	63.7	55.4	63.0		65.0	65.0	W.S.W. .	1	C. 1 . . .	[min., 50°.9.
	Midn't.	.130	66.5	60.3	53.6	59.4	47.2	61.7	61.2	N.N.W. .	2	K. 1 . . .	Over Andes. Max. temp., 75°.7;
29	6 A. M.												
	9	.136	63.5	63.9	55.9	63.5		63.4	62.7	N.N.W. .	2	0	Smoky.
	Noon.	.134	66.2	72.3	59.9	71.4		73.4	73.0	W.S.W. .	2	0	Do.
	3 P. M.	.162	69.6	77.8	68.7	76.5		77.0	76.5	W.S.W. .	2	0	Do.
	6	.081	70.6	73.0	58.1	71.6		73.3	73.0	S.W. . .	2	0	
	9	.116	68.0	63.3	53.6	62.6		64.7	64.3	N'd and E'd	Airs.	0	
	Midn't.	.108	66.3	60.6	51.8	59.0	47.0	61.7	61.1	N.N.W. .	2	0	Max. temp., 77°.2; min., 55°.5.
30	6 A. M.												
	9	.088	63.2	65.2	55.6	61.5		63.2	62.7	N.N.W. .	1	0	Smoky.
	Noon.	.078	66.0	71.0	63.7	70.0		70.0	69.0	S. westward	2	C. 1 . . .	
	3 P. M.	.066	67.5	71.0	56.7	69.8		71.5	71.0	S.W. . .	2	C. K. 9 . .	
	6	.076	67.3	64.5	53.4	62.8		65.7	65.1	S.E. . . .	Airs.	K. & C. 9 .	
	9	.074	65.0	56.5	49.5	56.3		58.5	58.0	S. eastward	1	C. K. 10 .	
	Midn't.	.074	63.2	53.5	47.4	53.1	45.2	55.2	55.0	E. . . .	2	K. & C. K. 7	Max. temp., 73°.0; min., 54°.8.
31	6 A. M.												
	9	.047	56.9	51.0	47.4	50.4		52.7	52.5	E.S.E. . .	1	C. S. 10 . .	
	Noon.	.038	59.0	59.4	51.5	57.9		59.6	59.1	W.S.W. .	1	0	C. S. over Andes and horizon.
	3 P. M.	.028	62.6	66.3	54.3	64.9		66.2	65.6	W.S.W. .	2	K. & C. 5 .	
	6	.018	63.7	60.7	50.9	59.4		62.0	62.0	W.S.W. .	1	K. & C. S. 9	
	9	.036	61.0	55.6	48.3	55.0		57.2	57.0	N.E. . . .	1	C. S. 1 . .	[min., 50°.2.
	Midn't.	28.074	59.0	50.0	45.9	48.0	42.1	51.6	51.5	E.N.E. . .	3	K. 1 . . .	Over Andes. Max. temp., 66°.7;

APRIL, 1851.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°	°	°				
1	6 A. M.												
	9	28.092	58.0	55.2	50.2	54.7		56.3	56.0	N.N.E . .	Airs.	C.K. & K.S. 8	At 9h. 5m. P. M., a short, quick, and vivid flash of lightning in the north-northeast.
	Noon.												
	3 P. M.												
	6	.110	64.0	64.5	52.5	65.5		65.3	64.3	S.S.W. . .	1	C. & C. S. 6	
	9	.128	61.0	55.0	47.6	55.6		56.0	56.0	S. westward	3	C. S. 1 . .	
	Midn't.	.126	60.0	53.1	47.2	52.5		53.6	53.5	S.E. . . .	2	C. S. 6 . .	Max. temp., 69°.2; min., 48°.5.
*2	6 A. M.												
	9	.126	58.1	58.1	50.2	56.9		58.3	58.0	S.S.E. . .	1	K. & C. S. 9	
	Noon.	.204	61.0	65.0	54.0	63.9		65.0	64.5	S. westward	2	C. K. 10 .	
	3 P. M.	.221	63.2	69.8	57.4	68.7		69.4	68.7	S. westward	1	C. K. 9 . .	
	6	.214	64.1	63.9	52.0	63.0		64.8	64.0	W.S.W. .	2	C. K. 8 . .	
	9	.244	62.6	56.8	49.3	55.9		57.0	57.3	N'd and E'd	Airs.	0	C. K. over Andes.
	Midn't.	.236	60.7	50.5	45.5	50.0	43.0	51.1	51.1	N.E. . . .	1	0	Max. temp., 69°.7; min., 50°.0.
†3	6 A. M.												
	9	.126	58.1	57.1	51.1	57.2		56.4	56.0	N.N.W. .	1	C. S. 1 . .	Over Andes.
	Noon.	.138	62.0	68.0	56.1	67.1		67.0	66.0	S.W. . .	1	C. 3 . . .	
	3 P. M.	.104	64.5	73.0	56.7	71.6		72.0	71.5	S. westward	2	C. & C. S. 7	
	6	.112	64.5	66.5	52.7	64.6		67.0	66.5	S. westward	1	C. K. & S. 9	
	9	.124	63.5	59.0	52.2	59.4		60.5	60.5	S. westward	2	C. K. 6 . .	
	Midn't.	28.118	62.0	55.5	50.0	54.9	40.0	57.0	57.0	S. westward	1	C. S. 1 . .	Max. temp., 74°.5; min., 49°.0.

* At 6h. 48m. 10s. A. M. of the 2d of April was awakened by a severe earthquake, which increased in violence until 6h. 48m. 28s. It continued at its greatest strength until 6h. 48m. 53s., when it began to diminish in violence; but the movement of the earth lasted until 6h. 49m. 38., gradually becoming less as the principal wave moved apparently to the southward. From that time until noon of the same day, there were repeated slight shocks. Those noted are as follows:

h. m. s.

A slight shock at 7 6 12, which lasted two seconds.
Do. at 7 6 52, which lasted till 7h. 7m. 12s.
Do. at 7 12 36, which lasted till 7h. 12m. 38s.
Do. at 7 33 36, } similar to two distinct and sharp thumps underneath.
Do. at 7 33 38, }
Do. at 8 6 0
Do. at 10 20 0
Do. at 11 34 36, till 11h. 34m. 43s.

The direction of the principal disturbing force was either towards the north or south. A chimney on the ridge of a house whose direction is north and south nearly was thrown down in a northeast direction, corresponding to the effect of the gravity which would carry it to the east, and a movement in a southerly direction which would throw it northwardly. The cups and saucers on a table in the hotel were jolted from the north to the south side, showing a movement in a southerly direction.

h. m. s.

At 0 8 31 P. M., a shock for one second.
At 0 8 34 P. M., a shock lasting till 0h. 8m. 39s.
At 3 6 0 P. M., a short, quick shock, with customary noise.
At 4 24 0 P. M., a slight shock.
At 5 55 0 P. M., do.
At 6 29 0 P. M., do.
At 7 1 22 P. M., a considerable shock, preceded some three or four seconds by a slight one, the noise distinctly heard to the northeastward about 15s. before the shock.
At 10 34 3 P. M., a slight shock.
At 11 27 15 P. M., a slight shock, and without noise.

While measuring wire intervals of the meridian circle on Santa Lucia from about 6h. 30m. till about 8h. 30m., it was observed that the mercury was never still for more than five or ten seconds at a time. A. MacR.

h. m. s.

† At 0 0 5 A. M., a slight shock, and without noise. (See vol. 1, pp. 108–115, 515, and 516.)
At 8 59 6 P. M., a premonitory shock.
At 8 59 12 P. M., a smart shock which lasted till 8h. 59m. 20s.
At 9 18 0 P. M., a premonitory shock.
At 9 18 10 P. M., a smart shock which lasted till 9h. 18m. 24s.

The shock at 8h. 59m. was accompanied by a noise, but that at 9h. 18m. was not. A. MacR.

APRIL, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Max.	Min.	Direction.	Force.		
		Inches.	°	°	°	°	°	°	°				
4	6 A. M.												
	9	28.196	58.8	62.8	55.9	62.0		63.2	63.2	Northward .	Airs.	0	At 9h. 1m. 30s. P. M., a slight earthquake. S. L. P.
	Noon.	.140	63.5	71.8	56.7	70.2		72.2	72.8	W.S.W. .	2	0	
	3 P. M.	.146	65.0	73.7	57.2			74.8	75.3	W.S.W. .	2	0	
	6	.180	65.2	64.5	56.5	63.0		66.3	65.8	Calm . .	0	C. K. 7 . .	
	9	.194	63.6	60.8	54.9	59.2		62.8	62.4	S'd and E'd	1	C. K. 9 . .	
	Midn't.	.184	62.0	59.0	54.5	57.6	40.8	60.8	60.3	Calm . .	0	C. K. 9 . .	Max. temp., 75°.0; min., 49°.0.
*5	6 A. M.												
	9	.204	60.0	56.5	54.5	56.3		57.0	57.0	S. eastward	2	K. S. & N. 10	
	Noon.	.180	60.3	57.0	53.6	56.3		58 0	57.7	Eastward .	1	N. & S. 10 .	Distant thunder and lightning occasionally.
	3 P. M.	.164	60.0	56.0	53.8	57.4		57.3	57.5	N. westward	1	K. S. & N. 10	
	6	.162	59.5	54.0	52.2	53.1		55.0	55.0	Southward .	2	N. 10 . .	
	9	.182	57.5	53.5	52.0	52.9		54.7	54.6	Southward .	2	N. 10 . .	Thunder and lightning nearer.
	Midn't.	.188	57.0	50.0	48.8	50.0	46.0	51.5	51.5	S. westward	2	N. 10 . .	Max. temp., 58°.5; min., 51°.5.
†6	6 A. M.												
	9	.188	56.0	57.3	49.1	51.8		58.4	58.0	South . .	2	N. 10 . .	
	Noon.	.174	58.2	61.3	55.9	60.3		63.3	63.4	S.W. . .	2	C. S. 9 . .	
	3 P. M.	.136	59.6	60.4	53.6	59.4		61.3	60.7	S.W. . .	2	C. S. 8 . .	
	6												
	9	.122	59.0	55.0	50.4	54.5		56.6	57.0	W.S.W. .	2	C. S. & K. 10	
	Midn't.	.128	57.8	54.0	50.2	53.4	44.4	55.6	55.2	Southward .	1	C. S. & K. 10	Max. temp., 63°.9; min., 50°.0.
7	6 A. M.												
	9	.196	57.0	56.4	51.3	55.6		57.5	57.7	Southward .	Airs.	0	C. S. about horizon.
	Noon.	.166	59.5	63.5	54.3	61.2		62.7	62.5	Southward .	1	K. & C. K. 3	Scattered.
	3 P. M.	.134	61.0	65.0	54.3	63.9		65.3	65.0	S. westward	3	C.K.&K.S. 7	At 1h. 51m. 30s. P. M., a shock for about two seconds. A. MacR.
	6	.134	61.0	59.5	53.1	59.0		61.0	61.0	S. westward	2	C. & K. S. 9	
	9	.156	60.0	54.5	49.1	54.0		55.5	55.5	W.S.W'd .	3	K. S. 10 .	
	Midn't.	.192	58.0	53.1	48.6	52.7	45.0	54.0	54.0	S. eastward	2	C.S.&K.S.10	Max. temp., 66°.0; min., 51°.5.
8	6 A. M.												
	9	.200	57.2	55.9	50.6	54.7		56.6	57.0	N'd and W'd	1	0	Two or three slight earthquakes during the day. At 8h. 34m. 14s. P. M., a shock, followed at 8h. 34m. 22s. by another, which lasted till 8h. 34m. 29s. S. L. P.
	Noon.	.184	58.9	62.4	54.9	61.0		62.3	61.8	S'd and W'd	1	C. & C. S. 10	
	3 P. M.	.192	59.7	60.1	53.1	59.2		61.0	60.6	S'd and W'd	1	C. & C. S. 10	
	6	.186	60.0	59.7	52.9	57.6		60.4	60.0	South . .	1	C. & K. S. 8	
	9	.192	59.4	55.4	51.3	54.5		56.3	56.2	N'd and E'd	Airs.	C. & K. S 10	
	Midn't.	.182	68.8	53.4	50.4	52.9	43.8	54.3	54.3	Calm . .	0	C.S.&K.S.10	Max. temp., 69°.3; min. 50°.0.
9	6 A. M.												
	9	.170	57.7	56.4	51.8	54.9		57.0	56.9	N.E. . . .	Airs.	C.S.&K.S.10	At 0h. 20m. A. M., a smart shock, preceded by a slight one. At 8h. 10m. P. M., another. S. L. P.
	Noon.	.162	57.8	60.8	55.9	59.7		60.7	60.1	N.W. . .	1	C. & K. 9 .	
	3 P. M.	.150	60.0	63.9	57.2	62.4		63.6	63.0	Calm . .	0	C. & K. 10 .	
	6	.152	60.6	60.7	54.5	59.7		61.8	61.0	Calm . .	0	C. 9 . . .	
	9	.160	59.6	54.5	50.9	52.7		56.3	56.0	Calm . .	0	C. 3 . . .	C. S. to the southward and over Andes.
	Midn't.	28.168	58.0	50.5	47.4	49.1	46.5	51.5	51.5	Southward .	1	C. 3 . . .	Max. temp., 65°.0; min., 51°.0.

* Raining occasionally since 7 A. M., and at times very hard. At about 5h. 30m. P. M. a hail-shower. Some two or three earthquakes have been felt since 12 last night, but the times were not noted. A. MacR.

Quantity of rain fallen 3.400 *in.*

† Quantity of rain fallen, 0.095 *in.* At 0h. 14m. 30s. A. M. a warning tremor, followed at 0h. 14m. 39s. by a smart shock, which lasted about 15 seconds. It was raining lightly at the time. No noise was heard either before or after. S. L. P.

APRIL, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Stand-ard.	Wet.	Dry.	Register. Sky.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°	°	°				
10	6 A. M.												
	9	28 136	55.9	58.9	54.3	58 1		60.4	60.0	N.E. . .	Airs.	C. 2 . . .	
	Noon.	.120	59.2	68.4	57.2	65.7		67.3	71.1	N.E. . .	1	C. 2 . . .	
	3 P. M.	.116	62.4	73.0	59.0	70.8		72.0	71.6	S.W. . .	1	C. 1 . . .	
	6	.142	63.1	66.8	59.1	66.0		67.9	67.3	S.W. . .	2	0	Several very slight shocks of earth-
	9	.158	61.9	58.8	54.3	57.9		58.0	61.0	N. . . .	Airs.	0	quakes during the 24 hours.—S. L. P.
	Midn't.	.166	59.9	53.6	50.6	59.3	41.0	54.5	56.7	N.E. . .	Airs.	0	Max. temp., 74°.0; min., 46°.0.
11	6 A. M.												
	9	.224	57.0	57.3	53.8	56.9		56.5	56.0	Calm . .	0	0	Smoky atmosphere.
	Noon.	.232	60.0	65.5	58.3	63.9		64.5	64.0	S. westward	2	0	Hazy about northern horizon.
	3 P. M.	.216	63.0	68.5	60.8	67.3		68.2	68.0	S. westward	3	0	Do. do.
	6	.222	62.5	60.7	55.6	58.5		62.5	62.4	S.W. . .	1	0	Do. do.
	9	.236	58.8	54.0	51.8	52.9		55.4	55.6	Westward .	1	Fog . . .	
	Midn't.	.219	58.3	53.0	50.6	51.5	43.0	53.6	53.7	N. eastward	1	Fog . . .	Max. temp., 70°.4; min., 50°.3.
12	6 A. M.												
	9	.193	55.7	52.0	50.0	51.3		52.8	52.8	N. eastward	1	Fog . . .	
	Noon.	.179	59.5	65.8	58.3	63.0		63.8	63.8	S. westward	1	0	Haze to northward.
	3 P. M.	.164	63.5	72.5	61.5	71.4		72.3	72.4	S.W. . .	1	0	
	6	.158	64.4	67.3	59.7	64.9		67.3	67.2	Calm . .	0	0	C. & C. S. to northward.
	9	.157	62.4	57.8	53.1	55.9		60.4	59.8	Calm . .	0	0	
	Midn't.	.154	60.5	54.0	50.9	53.4	48.8	56.5	56.2	Northward .	1	0	Max. temp., 73°.6; min., 51°.6.
*13	6 A. M.	.193	56.3	50.9	48.1	50.9		52.2	52.3	N. eastward	Air.	0	Late.
	9	.136	58.0	59.4	55 4	59.4		59.2	59.0	S. westward	1	0	Smoky.
	Noon.	.132	62.3	70.5	65.3	68.2		68.8	68.6	S.W. . .	1	0	Do.
	3 P. M.	.108	64.3	69.7	61.0	68.9		70.0	69.8	S.W. . .	1	0	
	6	.126	62.8	56.5	54.0	55.6		60.5	59.5	S.W. . .	2	Fog . . .	
	9	.136	60.2	53.9	52.2	52.9		56.7	56.5	S.W. . .	2	Fog . . .	
	Midn't.	.132	59.5	54.5	52.2	53.6	43.0	56.4	56.2	N.W. . .	2	Fog . . .	Max. temp., 72°.7; min., 55°.3.
14	7 A. M.	.152	57.6	51.1	49.5	50.4		52.6	52.6	Calm . .	0	Fog . . .	
	9	.172	57.3	52.3	50.4	51.3		53.4	53.5	Southward .	1	Fog . . .	
	Noon.	.184	57.7	54.5	52.0	54.3		55.5	55.5	Calm . .	0	Fog . . .	
	3 P. M.	.178	58.8	56.5	53.8	56.3		57.5	57.4	S. westward	1	S. & K. S. 10	
	6	.164	59.0	55.7	53.4	55.2		56.4	56.5	Calm . .	0	S. & K. S. 10	
	9	.172	58.4	53.5	52.2	53.1		54.5	54.8	S.W. . .	2	S. & K. S. 10	
	Midn't.	.160	58.0	52.8	51.5	52.5	47.0	53.7	53.7	S.S.E. . .	2	Fog . . .	Max. temp., 57°.6; min., 52°.0.
15	7 A. M.	.138	57.3	51.7	50.6	51.1		52.6	52.8	Calm . .	0	Fog . . .	An earthquake at 7h. 36m. 15s. A. M.
	9	.171	57.0	54 0	51.8	53.1		54.5	54.6	N.E. . .	1	Fog . . .	
	Noon.	.161	58.0	58.7	55.2	58.3		59.6	59.5	Westward .	2	C. 3 . . .	Atmosphere smoky.
	3 P. M.	.159	60.6	65.5	58.7	64.4		65.0	64.4	Westward .	2	0	Do. to northward.
	6	.182	61.2	57.5	53.8	56.5		59.3	59.3	S.W. . .	1	C. 2 . . .	Do. over Andes.
	9	.209	59.5	53.5	50.9	53.4		54.6	55.0	Calm . .	0	0	Do. do.
	Midn't.	28.194	58.0	51.0	48.6	49.3	46.7	52.0	52.8	Southward .	1	Fog . . .	Max. temp., 65°.5; min., 51°.7.

* At 3h. 41m. 40s. P. M., a light earthquake tremor, lasting 7s., followed at 3h. 41m. 53s. by a quite severe shock lasting 5s.—E. R. S.

APRIL, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°	°	°				
16	7 A. M.	28.229	56.5	52.2	50.2	51.1		52 4	52.6	Calm . .	0	Fog . . .	
	9	.238	57.0	54.2	52.0	53.1		54.8	55.0	Calm . .	0	Fog . . .	Late.
	Noon.	.221	57.3	55.7	52.5	54.3		56.4	56.4	Calm . .	0	S. 10 . . .	
	3 P. M.	.187	58.0	57.6	53.6	56.1		58.3	58.3	S.W. . .	2	S. 10 . . .	
	6	.187	58.3	54.8	52.7	54.5		55 7	55.8	S.W. . .	2	S. 10 . . .	[noise.
	9	.193	57.8	54.2	52.0	53.8		54.9	55.0	Calm . .	0	S. 10 . . .	At 9h. 51m. P. M., a slight shock, with
	Midn't.	.168	57.6	53 5	51.1	52.2	46.1	54.3	54.4	N. eastward	1	S. 10 . . .	Max. temp., 58°.6; min., 50°.3.
17	7 A. M.	.177	56.5	52.0	50.0	51.3		52.6	52.8	N. eastward	1	S. & K. S. 10	
	9	.188	56.2	55.8	51.8	54.5		56.4	56.6	Westward .	1	S. & K. S. 10	
	Noon.	.216	57.3	60.8	54.0	58.7		60.7	61.3	S.W. . .	3	S. & K. S. 10	
	3 P. M.	.203	58.3	58.6	55.4	58.3		59.8	59.6	S.W. . .	3	S. & K. S. 10	
	6	.218	58.4	55.0	51.8	54.5		55.7	55.8	S.W. . .	3	S. & K. S. 10	
	9	.235	58.0	55.0	51.3	54.5		55.5	55.7	W.N.W. .	3	C.S.&K.S. 10	
	Midn't.	.248	57.2	54.5	51.8	53.6	46.8	55.2	55.3	N.E. . . .	2	S. & K.S. 10	Max. temp., 61°.3; min., 51°.8.
18	7 A. M.	.270	57.6	53.2	51.1	52.5		53.9	54.2	Calm . .	0	S. & K. S. 10	Quantity of rain during the day 0.240 in.
	9	.300	57.0	54.9	52.7	54.0		55.4	55.5	S. eastward	3	Rain . . .	
	Noon.	.302	58.2	63.5	58.3	62.2		64.2	63.8	Calm . .	0	C. & C. K. 4	
	3 P. M.	.291	61.5	66.7	58.3	65.5		67.6	67.7	S. westward	1	C. K. 1 . .	
	6	.302	61.5	62.5	57.2	60.8		63.2	63.0	S.W. . .	Air.	0	Few S. around horizon.
	9	.317	60.3	56.0	52.7	55.2		57.3	57.6	Calm . .	0	0	
	Midn't.	.291	58.6	52.0	49.5	51.1	47.6	53.4	53.5	Calm . .	0	0	Max. temp., 69°.2; min., 53°.4.
19	7 A. M.	.242	54.7	48.0	47.4	49.3		49.0	49.2	N. eastward	1	0	Smoky. S. on mountains. At about 3h. 43m. A. M., two pretty strong earthquakes, following each other at an interval of a few seconds. They were very short, and I did not perceive any noise. E. R. S.
	9	.248	56.0	57.0	54.5	57.2		56.2	56.2	Calm . .	0	0	
	Noon.	.202	60.3	66.2	59.9	65.1		65 0	65.2	S.W. . .	1	0	
	3 P. M.	.165	63 5	72.5	58.1	70.2		70.6	70.8	Calm . .	0	0	
	6	.166	64.0	66.7	58.7	64.4		67.0	66.7	S.W. . .	1	0	
	9	.170	61.5	57.8	52.7	56.5		58.7	58.7	N.E. . . .	1	0	
	Midn't.	.137	59.7	54.0	50.4	53.1	42.6	54.8	55.4	Calm . .	0	0	Max. temp., 71°.4; min., 48°.3.
20	6 A. M.	.114	56.5	49.0	46.2	48.7		49.8	50 4	Calm . .	0	0	C. S. around horizon to southward.
	9	.140	58.0	60.7	56.3	59.9		59.4	59.4	S.W. . .	2	C. 1 . . .	
	Noon.	.139	63.0	70.0	60.6	68.7		68.7	68.6	S.W. . .	2	C. & C. S. 6	
	3 P. M.	.119	66.0	72.6	61.7	70.8		71.7	71.7	S.W. . .	3	C. & C. S. 4	
	6	.140	65.3	65.7	58.7	63.5		65.6	65.6	Calm . .	0	C. & C. S. 3	
	9	.145	63.0	59.3	54.5	57.9		60.5	60.6	N.E. . . .	1	C. S. 1 . .	Late.
	Midn't.	.140	61.5	56.8	53.1	55.6	43.8	58.0	58.0	N.E. . . .	1	C. & C. K. 6	Max. temp., 72°.5; min., 50°.3.
21	6 A. M.	.175	60.3	55.6	53.4	54.7		56.2	56.3	N.E. . . .	1	C. & K. S. 9	Late.
	9	.206	60.6	60.5	57.9	60.1		60.2	60.4	N.W. . .	2	K. & K. S. 10	
	Noon.	.206	61.6	64.4	59.2	63.3		64.4	64.2	Northward .	1	K. & K. S. 9	Some rain fell about noon.
	3 P. M.	.201	63.6	66.4	60.3	65.3		67.5	67.0	W.S.W. .	4	K. & K. S. 8	
	6	.203	62.5	60.9	57.9	60.1		62.3	61.7	S.W. . .	3	K. & K. S. 8	
	9	.223	62.4	58.2	55.9	57.6		59.0	59.0	N.E. . . .	1	K. S. 2 . .	
	Midn't.	.228	62.5	58.0	55.9	56.9	50.7	58.9	58.7	Southward .	1	K. S. 10 . .	Max. temp., 68°.8; min., 55°.8.
22	7 A. M.	.237	61.3	56.1	54.3	55.4		56.8	57.2	S.W. . .	1	Mist 10 . .	Commenced raining about 11h. 50m.
	9	.250	60.0	56.7	55.2	56.3		57.5	57.6	S.W. . .	1	Mist 10 . .	P. M.
	Noon.	.207	61.2	62.0	57.9	61.0		62.5	62.3	S.W. . .	3	K. & K. S. 10	
	3 P. M.	.182	62.2	63.0	58.3	62.6		63.7	63.5	S.W. . .	3	S. & K. S. 10	
	6	.224	61.4	58.6	53.8	58.1		59.5	59.5	S.W. . .	1	S. & K. S. 10	
	9	.232	60.0	56.2	52.2	55.4		57.4	57.2	N.E. . . .	1	S. & K. S. 10	
	Midn't.	28.261	59.5	55.7	52.2	54.7	49.7	56.6	56.7	N.E. . . .	3	Rain . . .	Max. temp., 64°.2; min., 56°.3.

APRIL, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Register. Max.	Register. Min.	Direction.	Force.		
		Inches.	°	°	°	°	°	°	°				
23	6 A. M.	28.262	58.4	52.0	50.0	51.1		52.7	53.0	N.E. . . .	1	K. S. 1 . .	Mist around the mountains. Much snow fell upon the mountains to the eastward during the night. Quantity of rain during the night, together with a very little on the 21st, 0.610 *in.*
	9	.271	58.5	56.1	53.8	56.1		55.6	56.5	N.E. . . .	1	K. S. 1 . .	
	Noon.	.241	60.7	63.4	56.7	62.4		63.4	62.8	S.W. . .	1	C. K. 1 . .	
	3 P. M.	.217	63.6	67.7	60.1	67.1		67.7	67.2	S.W. .	1	C. K. 3 . .	
	6	.188	63.5	63.4	57.2	61.7		64.2	64.0	Southward .	1	K. C.K. & C.7	
	9	.180	62.1	58.4	54.9	57.2		59.8	59.7	N.E. . .	1	K. S. & C. 4	
	Midn't.	.147	60.7	55.5	52.2	54.0	47.7	56.5	57.0	N.E. . . .	1	K. S. & C. 3	Max. temp., 67°.6; min., 53°.7.
24	6 A. M.	.104	59.5	53.8	51.3	53.1		54.7	54.8	Eastward .	1	K.S.S.&C.S 10	
	9	.088	59.3	56.5	53.4	56.1		57.2	57.0	N.W. . .	2	K. S. 9 . .	
	Noon.	.064	60.2	63.9	57.2	62.0		63.6	63.0	S. eastward.	1	S. & K. S. 9	
	3 P. M.	.130	62.2	65.6	58.3	63.9		65.7	65.4	Southward .	1	S.K.S.& C.S.9	
	6	.024	61.8	60.0	56.3	59.7		61.2	60.8	Southward .	1	S.K.S.&C.S.6	
	9	.033	60.4	55.7	52.7	55.2		57.3	57.4	N. eastward	1	S. K.S.& C.3	
	Midn't.	.029	57.8	52.0	49.1	51.3	47.5	53.6	54.0	Eastward .	1	S. & C. S. 3	Max. temp., 66°.5; min., 53°.5.
*25	6 A. M.	.021	56.1	49.7	47.2	49.2		50.7	51.8	N.E. . . .	1	K. S. & C. 4	
	9	.070	56.6	57.5	52.7	56.7		57.3	57.3	Southward .	Air.	C.S. & C.K.6	
	Noon.	.062	59.8	63.0	55.4	62.2		63.2	62.6	S.W. . .	2	S.C.S.&K.S.9	
	3 P. M.	.048	62.3	66.7	57.2	65.5		66.8	66.4	S.W. . .	3	S.K.S.& K.10	
	6	.064	61.3	59.0	54.5	57.9		60.0	60.0	S.W. . .	3	S. K. & K.S. 10	
	9	.085	60.7	57.3	53.1	56.3		58.0	57.8	Calm . .	0	K.S. &C.S. 10	
	Midn't.	.080	60.4	56.7	53.1	56.1	43.8	57.5	57.6	S.W. . .	1	K. S. 10 . .	Max. temp., 66°.7; min., 51°.0.
26	6 A. M.	.090	59.3	53.7	50.4	53.4		55.0	55.3	Calm . .	0	K. S. 8 . .	Late.
	9	.128	59.2	57.4	52.7	56.9		57.8	57.7	Southward .	1	K. C.K. & S.7	
	Noon.	.136	60.1	62.5	54.0	61.7		63.0	62.7	S.W. . .	2	K. & K. S. 10	
	3 P. M.	.134	61.0	60.0	54.0	60.1		61.2	61.5	W. . . .	4	K. & K. S. 10	
	6	.179	60.2	55.6	51.5	54.9		56.8	57.0	S.S.W. . .	4	K. & K. S. 9	
	9	.220	59.0	54.0	50.0	53.6		55.0	55.4	Southward .	4	Rain . . .	Very light.
	Midn't.	.230	58.0	52.0	49.1	51.5	46.7	53.7	53.5	Southward .	3	K. & K. S. 10	Max. temp., 64°.4; min., 53.°0.
27	6 A. M.	.276	56.4	48.6	45.9	48.4		49.5	50.5	S.W. . .	1	K. & K. S. 9	Late.
	9	.296	55.8	51.6	48.1	51.5		52.5	52.7	S.W. . .	1	K. C.K. & S.4	
	Noon.	.270	58.0	59.0	52.0	58.5		59.6	59.6	S.W. . .	3	K. 7 . . .	
	3 P. M.	.236	59.3	60.6	51.5	59.7		61.2	61.0	S.W. . .	3	K. 2 . . .	Mostly over Andes.
	6	.232	58.8	55.5	48.1	53.6		57.0	56.8	Calm . .	0	0	C. and S. around horizon.
	9	.233	57.3	50.2	45.5	49.7		51.5	52.2	N.W. . .	1	S. & C. S. 3	
	Midn't.	.225	55.7	48.3	43.9	47.0	41.2	48.7	49.7	N.N.E . .	1	S. 1 . . .	Max. temp., 61°.5; min., 49°.3.
28	6 A. M.	.187	50.5	40.7	38.6	40.0		41.8	43.4	Calm . .	0	C. & C. S. 6	
	9	.213	51.8	48.0	44.8	47.4		48.5	49.0	Southward .	Air.	S. & C. S. 6	
	Noon.	.206	55.0	57.2	50.2	56.5		57.6	57.5	S.W. . .	Air.	S. & C.S. 7 .	
	3 P. M.	.196	57.6	60.1	49.3	58.7		60.6	60.2	S.W. . .	2	C. S. 1 . .	Over Andes.
	6	.201	57.3	52.5	44.4	51.1		53.7	54.0	Southward .	Air.	0	
	9	.222	55.0	46.8	41.0	45.5		47.3	48.5	Northward .	1	0	
	Midn't.	28.230	52.6	44.5	39.8	44.1	36.2	44.7	45.8	N.E. . . .	1	0	Max. temp., 60°.7; min., 43°.0.

* Earthquake—shock commenced at 3*h*. 28*m*. 22*s*. P. M., was most violent at 3*h*. 28*m*. 23*s*., and ended at 3*h*. 28*m*. 43*s*. The shock, though long, was not a heavy one. For the first ten seconds, it would not have attracted our notice, except for the rattling of the doors and the very distinct rumbling accompanying it, sounding like a cart coming from the eastward.

The same earthquake was recorded by me at Valparaiso at 3*h*. 14*m*. 15*s*. P. M., or 3*h*. 18*m*. 11.5*s*. Santiago mean time; and it is probable that an error of 10*m*. was committed either by myself or the assistant at Santiago.

J. M. G.

APRIL, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Register. Max.	Register. Min.	Direction.	Force.		
		Inches.	°	°	°	°	°	°	°				
29	6 A. M.	28.194	48.3	38.5	34.5	37.2		38.4	40.2	Southward .	1	C. S. 1 . .	Frost on roofs.
	9	.226	49.5	48.7	43.7	48.1		48 3	49.0	Calm . .	0	0	Smoky.
	Noon.	.220	54.0	59.2	48.4	57.4		58.0	58.0	S.W. . .	1	0	
	3 P. M.	.215	59.4	65 4	51.5	63.7		65.2	64.5	S.W. . .	1	0	
	6	.212	59.0	56.3	46.4	54.5		56.8	56.8	Eastward .	1	0	Smoky.
	9	.208	54.5	47.8	42.3	46.6		48.4	49.3	N.E. . . .	2	0	
	Midn't.	.194	51.5	43.5	39.3	43.0	30.9	43.8	45.2	N.E. . . .	2	0	Max. temp., 65°.3; min., 38°.0.
30	6 A. M.	.132	53.0	38.8	35.6	38.4		39.0	41.0	N.E. . . .	1	0	
	9	.130	51.5	50.2	45.3	50.9		49.8	50.6	Southward .	Air.	0	Smoky.
	Noon.	.115	58.8	68.5	52.9	66.2		64.6	64 6	Calm . .	0	0	Do.
	3 P. M.	.096	65.3	75.3	54.3	72.3		73.6	73.0	Calm . .	0	0	Do.
	6	.081	62.7	62.3	52.0	59.4		62.8	62.7	Calm . .	0	C. & C. S. 1	
	9	.085	58.6	53.0	46.2	51.5		53.6	54.3	Calm . .	0	0	
	Midn't.	28.084	56.0	48.7	43.7	47.2	31.8	49.8	49.0	N.E. . . .	2	0	Max. temp., 69°.0; min., 43°.5.

MAY, 1851.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Register. Max.	Register. Min.	Direction.	Force.		
		Inches.	°	°	°	°	°	°	°				
1	6 A. M.	28.066	51.3	41.5	37.0	40.5		41.7	42.7	Calm . .	0	0	Late.
	9	.105	53 0	54.3	47.4	54.0		52.8	53.2	Calm . .	0	0	Smoky.
	Noon.	.094	60.0	68.5	53.8	65.3		66.6	66.2	Calm . .	0	0	Do.
	3 P. M.	.056	63.0	73.8	56.1	71.8		72.7	71.7	Westward .	1	0	
	6	.086	62.2	62.2	52.7	60.3		63.4	63.2	E. . . .	1	C. 1 . . .	
	9	.116	59.8	54.4	48.1	52.7		55.3	55.8	N.E. . . .	1	0	
	Midn't.	.105	56.7	48.4	43.9	47.0	33.8	49.4	50.3	N.E. . . .	1	0	Max. temp., 72°.5; min., 42°.2.
2	6 A. M.	.052	52.0	42.3	38.0	40.3		42.8	43.6	N.E. . . .	1	C. S. 1 . .	
	9	.064	52.7	55.5	49.5	54.5		55.0	55.5	W. . . .	1	C. S. 1 . .	Smoky.
	Noon.	.068	59.0	67.7	55.6	65.5		64.8	64.5	E. . . .	1	C. & C. S. 4	
	3 P. M.	.052	60.8	62.5	53.8	61.2		64.5	64.4	S.W. . .	1	S. & C. S. 8	Late.
	6	.060	57.6	52.9	48.1	51.1		54.5	55.2	N.E. . . .	2	S. & C. S. 8	
	9	.056	56.5	49.3	45.7	48.0		50.7	51.4	N.E. . . .	2	0	
	Midn't.	.005	55.0	46.6	42.8	45.3		47.8	48.5	N.E. . . .	2	0	Max. temp., 73°.7; min., 43°.5.
3	6 A. M.	.042	52.5	44.3	43.2	43.9		44.4	45.3	E. . . .	2	Fog 10 . .	
	9	.072	52.3	49.0	46.6	48.4		49.2	49.6	N.E. . . .	1	Fog 10 . .	
	Noon.	.030	55.0	58.8	53.1	57.9		59.7	59.6	Calm . .	0	S.K. S.&C.9	
	3 P. M.	.019	58.8	60.2	53.6	59 0		59 7	59.5	Calm . .	0	S.K.S.C.S.10	
	6	.038	58.0	57.3	51.8	55.9		57.7	57.7	N.E. . . .	1	S.C.S.&C.K.7	
	9	.060	56.7	50.2	47.0	49.3		50.8	51.7	Calm . .	0	0	
	Midn't.	28 060	54.7	46.8	44.1	45.9	39.0	47.3	48.4	Eastward .	1	0	Max. temp., 60°.7; min., 45°.0.

MAY, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register.			Direction.	Force.		
							Sky.	Max.	Min.				
		Inches.	°	°	°	°	°	°	°				
4	6 A. M.	28.102	53.0	47.2	44.6	46.6		47.0	48.2	Northward .	1	S. & C. S. 1	
	9	.116	53.2	53.5	49.7	53.4		53.3	52.6	W.N.W. .	1	S. C.S. & C.1	
	Noon.	.104	58.2	65.8	55.9	65.3		63.2	63.0	W. . . .	3	C. S. 1 . .	
	3 P. M.	.074	61.5	71.3	56.7	69.1		69.7	69.2	S.W. . .	1	S. & C. S. 1	
	6												
	9	.059	59.4	56.3	49.1	54.7		57.3	57.6	N. . . .	1	0	
	Midn't.	.101	57.6	51.5	46.4	50.9	37.5	52.5	53.0	N. . . .	2	0	Max. temp., 69°.7; min., 44°.0.
5	6 A. M.	.142	54.3	46.7	43.2	46.4		47.4	48.3	Calm . .	0	0	Late.
	9	.164	55.0	55.0	50.4	55.6		54.1	54.4	Calm . .	0	0	
	Noon.	.154	61.6	68.5	56.7	67.3		66.0	65.6	Calm . .	0	0	
	3 P. M.	.147	63.6	73.7	56.7	71.8		70.7	70.3	Southward .	1	0	
	6	.136	64.6	65.3	55.6	63.0		65.4	65.2	Eastward .	1	0	C. to westward.
	9	.176	60.2	57.6	51.8	58.7		59.0	59.2	N.E. . . .	3	0	
	Midn't.	.159	59.8	56.0	50.9	55.4	40.0	56.7	57.0	Calm . .	0	0	Max. temp., 71°.2; min., 47°.8.
6	6 A. M.	.152	57.7	50.1	45.9	48.8		51.3	52.2	Calm . .	0	0	
	9	.174	58.2	60 2	54.7	60.8		59.0	58.8	Calm . .	0	0	Smoky.
	Noon	.148	62.6	70.6	60.6	69.5		68.3	67.8	S.W. . .	2	0	
	3 P. M.	.132	66.8	74.1	61.0	71.8		72.0	71.5	S. by E. . .	1	0	K. to westward over mountains.
	6	.118	65.4	67.5	59.9	65.7		67.7	67.6	Calm . .	0	0	C. C. S. to westward.
	9	.126	62.6	58.9	52.7	57.9		60.3	60.3	Calm . .	0	0	
	Midn't.	.121	61.8	57.6	53.8	56.1	43.4	58.3	58.4	N.E. . . .	1	0	Max. temp., 71°.7; min., 51°.6.
7	7 A. M.	.092	58 0	52.9	50.6	52.2		53.4	53.8	N.E. . .	1	0	Fog around Andes.
	9	.104	59.0	60.7	57.2	60.1		60.0	59.5	N.W. . .	1	0	Do.
	Noon.	.092	62.7	69.5	60.8	68.0		68.8	67.8	N.N.W. .	1	0	
	3 P. M.	.086	65.0	72.8	61.0	71.0		72.8	71.8	S.W. . .	1	0	K. over mountains to westward.
	6	.079	65.0	66.0	58 7	63.7		66.8	66.6	Eastward .	1	0	
	9	.106	63.5	60.9	55.2	60.1		62.0	61.8	Eastward .	1	0	
	Midn't.	.098	62.4	56.5	52.7	55.6	45.0	57.8	58.2	N.E. . .	1	0	Max. temp., 72°.7; min., 51°.4.
8	7 A. M.	.095	58.4	52 0	49.3	50.9		53.4	53.8	Southward .	Air.	C.K. & C. S. 1	Over mountains to westward.
	9	.109	59.6	60.8	56.7	59.9		59.8	59.8	W. . . .	1	K. & C. S. 1	Over Andes; smoky.
	Noon.	.094	63.6	68.7	60.8	67.3		67.6	67.0	S.W. . .	1	0	K. C. over Andes; smoky.
	3 P. M.	.067	65.7	71.3	61.7	69.5		70.3	69.6	S.W. . .	1	C. K. 1 . .	
	6	.084	64.7	63.7	59.0	62 4		65.2	65.0	S.S.W. . .	1	K.C.K. & C. 5	
	9	.102	63.3	60 5	56.9	59.4		61.7	61.6	Southward .	1	K. S. & S. 10	
	Midn't.	.073	62.7	59.9	56.5	58.7	47.0	60.8	60.7	Eastward .	2	K. S. 10 .	Max. temp., 70°3; min., 53°.0.
9	6 A. M.	.042	61.8	57.2	54 7	56.5		58.5	58.6	W.S.W. .	1	S.C.S.&K.S. 10	
	9	.047	61.5	60.6	56.9	59.7		61.2	60.8	S.W. . .	1	S. & K. S. 10	
	Noon.	.034	62.6	64.0	58.3	63.3		64.2	63.8	S.W. . .	2	S. & K. S. 10	
	3 P. M.	.017	63.0	63.6	58.1	62 8		64.2	63.7	S.S.W. . .	1	S. & K. S. 10	
	6	.022	63.0	60.0	56.7	59.4		61.4	61.4	S.W. . .	2	S. & K. S. 10	
	9	28.013	62.0	57.1	54.9	56.5		58.5	58.7	S.W. . .	2	S. & K. S. 10	
	Midn't.	27.996	61.4	56.5	54.0	55.9	51.5	57.5	57.6	S.W. . .	2	S. & K. S. 10	Max. temp., 65°.2; min., 57°.0.
10	7 A. M.	27.988	60.2	54.3	52 2	53.8		55.5	55.5	S.W. . .	2	Rain . . .	Rain began at 6h. 55m. A. M. Quan-
	9	28.040	59.8	54.2	52.5	53.8		55.3	55.5	S.W. . .	1	Rain . . .	tity of rain fallen at midn't 2.490 in.
	Noon.	.036	58.7	56.3	52.9	56.1		57.0	57.0	N.E. . .	1	Rain . . .	Very light.
	3 P. M.	.063	63.8	56.1	52.2	55.4		56.8	56.8	S.W. . .	1	Rain . . .	Do.
	6	.117	62.5	53.5	51.1	52.7		54.6	54.7	Eastward .	1	K. S. 10 . .	
	9	.170	68.8	52.5	50.6	51.8		53.8	54.3	Westward .	1	Rain . . .	Very light. [ing hard.
	Midn't.	28.194	64 8	51.8	50.0	51.1	47.6	52.8	53.3	Calm . .	0	Rain . . .	Max. temp., 59°.3; min., 52.°8. Rain-

MAY, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Register. Max.	Register. Min.	Direction.	Force.		
		Inches.	°	°	°	°	°	°	°				
*11	6 A. M.	28.160	61.3	51.5	48.8	50.0		51.8	52.6	N.W. . .	2	S. & K. S. 10	Snow low down the Andes.
	9												
	Noon.	.251	63.7	57.3	52.9	55.6		56.6	56.6	Southward .	1	Rain . . .	
	3 P. M.	.238	63.6	60.2	54.5	58.5		60.5	60.3	Westward .	2	K.K.S.&C.S.9	
	6	.271	63.0	56.0	52 5	54.9		56.7	57.0	Westward .	1	K.K.S.&C.S.9	
	9	.332	62.5	53.7	50.9	52.7		54.7	55.0	N.E. . . .	2	Rain . . .	
	Midn't.	.359	62.9	50.6	48.1	49.7	45.5	52.0	52.7	Southward .	1	K. & C. K. 7	Max. temp., 63°.2; min., 51°.5.
12	7 A. M.	.380	62.7	50.0	48.6	49.7		50.7	51.7	Calm . .	0	K. & K. S. 10	Foggy.
	9	.382	57.3	50.1	48.8	49.3		50.7	51.6	Calm . .	0	Fog . . .	
	Noon.	.360	59.4	58.0	52.7	56.3		58.2	58.2	Calm . .	0	K. 6 . . .	
	3 P. M.	.352	61.7	59.5	54.0	58.3		60.2	59.9	Calm . .	0	K. 1 . . .	Over Andes.
	6	.350	63.0	55.8	51.8	55.2		57.0	57.5	Westward .	1	0	K. and C. over mountains to westward.
	9	.356	60.7	50.5	47.6	49.3		52 5	52.8	Calm . .	0	C. K. & C. 4	At 10 P. M. a lunar halo.
	Midn't.	.346	61.7	48.0	45.7	46.8	42.7	49.7	50.8	Northward .	1	0	Few C. K. around the horizon. Max. temp., 60°.3; min., 48°.4.
13	7 A. M.	.332	55.7	45.0	43.0	44.1		46.3	47.6	N. eastward	1	K. & C. S. 1	
	9	.335	56.5	52.9	49.7	51.8		52.4	53.0	Westward .	1	K. K.S.& C. 7	
	Noon.	.300	60.2	61.0	54.9	59.9		61.3	61.2	Calm . .	0	C.K. & C. S. 6	
	3 P. M.	.269	62.0	65.2	55.2	63.5		64.7	64.5	S. westward	1	C.K.& K. S. 8	
	6	.267	62.0	61.5	56.3	60.1		62.4	62.4	Eastward .	1	K.S. & C. K. 8	
	9	.267	61.4	58.8	53.8	57.6		59.8	60.0	N. westward	1	K.C.K. & S. 8	
	Midn't.	.255	60.5	55.1	51.5	54.0	40.0	56.3	56.7	Calm . .	0	K. & C. K. 4	Halo around moon. Max. temp., 60°.7; min., 46°.8.
14	6 A. M.	.214	58.0	51.6	49.0	51.3		52.7	53.5	Calm . .	0	C. C.S. & K. 5	Late.
	9	.236	58.5	58.2	54.3	57.2		57.6	57.8	W. . . .	1	C.C.K.&C.S. 6	
	Noon.	.210	62.2	67.5	59.0	66.2		66.3	65.8	Calm . .	0	C.K.C.S.&C. 9	
	3 P. M.	.196	65.4	70.7	60.6	69.3		70.0	69.4	W. . . .	1	C. & C. S. 3	
	6	.225	64.6	63.8	57.6	62.4		65.4	65.0	Calm . .	0	C. & C. S. 4	
	9	.226	61.6	57.0	53.6	56.3		58.8	59.2	Calm . .	0	C. & C. S. 2	
	Midn't.	.208	59.3	52.3	49.0	51.8	45.5	54.5	55.0	Calm . .	0	C. & C. S. 1	Lunar halo. Max. temp., 70°.7; min., 52°.4.
15	7 A. M.	.179	55.0	47.3	45.0	46.4		49.2	50.3	Calm . .	0	C. & C. S. 1	Over Andes.
	9	.205	55.2	55.7	53.6	55.9		55.6	56.0	Calm . .	0	0	C. S. over Andes.
	Noon.	.180	61.4	66.8	59.4	65.1		66.2	65.5	Calm . .	0	0	Do. do.
	3 P. M.	.154	63.6	69.9	61.2	68.4		69.0	68.6	S.W. . .	1	0	
	6	.179	63.0	61.3	55.9	58.7		62.8	62.7	Southward .	Air.	0	
	9	.176	60.6	54.5	51.3	53.1		56.7	57.0	N. eastward	Air.	0	
	Midn't.	.153	59.7	53.0	50.2	51.5	47.7	54.3	55.0	Calm . .	0	0	Max. temp., 69°.3; min., 50°.0.
16	7 A. M.	.147	55.0	46.4	44.8	46.6		48.3	49.5	Calm . .	0	0	Fog around the base of mountains.
	9	.178	55.2	50.6	49.3	50.0		51.7	52.6	Southward .	1	Fog . . .	
	Noon.	.170	56.8	58.0	54.5	56.5		57.5	57.6	S.E. . . .	1	Fog . . .	
	3 P. M.	.165	63.0	62.6	57.6	61.2		62.8	62.8	S.W. . .	1	0	Atmosphere foggy.
	6	.184	62.6	57.5	54.5	56.1		59.1	59.6	Calm . .	0	C. K. 1 . .	
	9	.200	60.4	52.7	50.2	51.5		54 3	55.2	N.W. . .	1	0	S. and K. over mountains to eastward.
	Midn't.	28.193	58.8	51.0	49.5	50.6	41.5	52.3	52.2	N.W. . .	2	C. K. 1 . .	Taken 30*m.* late. Max. temp., 62°.2; min., 48°.7.

* 6*h.* 13*m.* 50*s.* to 6*h.* 14*m.* P. M., slight earthquake shock, accompanied by a rumbling noise. At midnight quantity of rain fallen, 0.778 in. Two earthquake shocks late at night, pretty strong; time not ascertained. Lunar halo at 10 P. M.

MAY, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Max.	Min.	Direction.	Force.		
		Inches.	°	°	°	°	°	°	°				
17	7 A. M.	28.168	55.4	45.7	44.6	45.5		47.2	46.7	Calm . .	0	C. & C. S. 1	
	9	.170	56.4	53.8	52.0	53.4		53.5	54.4	Calm . .	0	C. & C. S. 1	Smoky.
	Noon.	.153	59.1	61.9	56.3	60.3		62.8	62 4	Eastward .	1	C. & C. S. 1	Do.
	3 P. M.	.122	61.8	67.0	58.1	65.3		66.7	66.3	Southward .	1	C. & C. S. 3	
	6	.126	61.7	59.3	53.8	57.2		60.7	61.0	Calm . .	0	0	C. around horizon.
	9	.150	59.6	52.3	49.1	51.3		54.3	55.5	Calm . .	0	0	Do.
	Midn't.	.136	58.0	52.3	48.8	51.3	41.1	53.2	54.2	Northward .	1	0	Max. temp., 61°.6; min., 48°.0.
18	7 A. M.	.154	53.5	44.9	42.6	44.8		46.2	47.7	Calm . .	0	0	C. around horizon.
	9	.166	54.7	53.0	49.7	52.5		53.0	53.7	N.W. . .	2	C. 1 . . .	
	Noon.	.156	59.4	65.1	56.5	63.7		64.2	64.0	W. . . .	1	C. & C. S. 1	
	3 P. M.	.124	62.0	68.6	56.9	66.6		68.3	68.0	W.S.W. .	1	C. & C. S. 1	
	6	.143	61.7	60.3	53.1	57.6		61.6	61.7	Calm . .	0	0	C. around horizon.
	9	.173	59.0	51.8	48.1	50.4		53.8	54.7	E. . . .	1	0	
	Midn't.	.168	57.0	49.5	46.2	48.7	38.0	51.0	51.8	N.E. . . .	1	0	Max. temp., 68°.0; min., 46°.0.
19	7 A. M.	.160	53.2	43.4	41.0	43.2		44.8	46.4	N.E. . . .	Air.	0	
	9	.184	54.0	54.6	51.1	54.3		52.6	53.4	N.W. . .	Air.	0	
	Noon.	.196	58.5	63.7	55.6	61.7		61.5	61.7	N.W. . .	1	0	
	3 P. M.	.198	62.2	66.7	56.7	64.4		66.4	66.0	W.S.W. . .	1	0	
	6	.190	60.5	57.0	54.0	56.3		59.6	59.6	Calm . .	0	0	
	9	.160	57.5	51.3	47.6	50.0		53.8	54.6	Calm . .	0	0	[temp., 66°.4; min., 46°.6.
	Midn't.	.140	56.0	47.8	45.0	47.4	38.2	49.4	51.0	N.W. . .	1	S. & C. S. 1	Over mountains to eastward. Max.
20	7 A. M.	.123	51.8	43.3	41.2	42.8		44.7	45.5	S.E. . . .	1	C. & C. S. 2	Late.
	9	.136	53.1	52.3	49.1	51.3		51.3	52.6	Calm . .	0	C. & C. S. 3	
	Noon.	.118	57.6	61.5	54.9	59.7		61.3	61.3	Calm . .	0	C. & C. S. 3	
	3 P. M.	.108	60.1	64.5	55.6	62.6		63.5	62.7	S.W. . .	1	C. & C. S. 6	
	6	.128	59.8	56.7	51.3	54.9		58.2	58.8	Calm . .	0	S. & C. S. 2	
	9	.120	56.5	50.5	46.8	49.1		52.2	52.5	E. . . .	Air.	S. & C. S. 3	
	Midn't.	.094	55.1	46.8	44.1	46.2	37.6	48.3	49.4	Eastward .	Air.	S. & C. S. 9	Max. temp., 63°.6; min., 45°.5.
21	7 A. M.	.080	52.7	44.7	42.8	43.7		45.3	46.5	Calm . .	0	0	C. around horizon.
	9	.082	53.3	51.3	47.4	50.4		51.3	51.4	Eastward .	1	C. & C. S. 1	Smoky.
	Noon.	.079	57.7	63.9	53.6	62.0		63.5	62.6	S.W. . .	1	C. & C. S. 2	
	3 P. M.	.068	61.3	64.0	54.7	62.4		64.0	63.4	S.W. . .	1	C. S. & S. 9	
	6	.066	59.3	55.9	50.9	54.0		57.5	57.7	Calm . .	0	C. & C. S. 9	
	9	.052	55.7	50.5	47.0	49.1		52.0	52.4	Calm . .	0	C. & C. S. 5	
	Midn't.	.052	55.8	48.5	45.3	47.0		49.7	50.6	N. eastward	Air.	C. & C. S. 8	Max. temp., 65°.3; min., 44°.7.
22	6 A. M.	.124	53.3	47.0	45.5	46.4		47.4	48.0	Southward .	Air.	Fog . . .	Late.
	9	.176	54.0	50.1	47.6	49.1		50.0	50.3	S. eastward	1	Fog . . .	
	Noon.	.184	57.1	62.0	50.6	52.5		53.7	53.8	Westward .	1	S. & K. S. 10	Fog.
	3 P. M.	.179	61.7	57.0	52.0	55.6		56.0	55.7	Calm . .	0	S. & K. S. 10	
	6	.169	59.7	51.7	48.4	50.4		52.7	53.2	N.E. . . .	1	S. & K. S. 10	
	9	.214	57.8	49.4	47.0	48.4		50.2	51.0	N.E. . . .	1	S. & K. S. 10	[56°.3; min., 46°.3.
	Midn't.	.214	56.8	47.9	45.7	47.0	40.8	48.6	49.0	N.E. . . .	2	K.K.S.&C.K. 7	Taken an hour late. Max. temp.,
23	7 A. M.	.224	53.8	47.0	45.0	46.6		47.5	48.2	Calm . .	0	K. S. & C. 5	
	9	.266	53.8	51.1	48.4	50.4		51.3	51.4	Calm . .	0	K. & C. K. 4	
	Noon.	.228	57.8	60.5	53.1	59.0		60.5	59.8	N. . . .	1	0	Smoky.
	3 P. M.	.175	60 0	62.2	54.3	61.0		62.8	62.3	S.W. . .	1	C. & C. S. 3	
	6	.168	59.0	55.5	50.4	53.6		56.8	56.8	N.E. . . .	1	K. & C. S. 2	
	9	.133	57.4	52.7	49.3	51.8		53.7	54.0	N.E. . . .	1	Clouds 10 .	
	Midn't.	28.094	57.2	51.7	48.6	51.1	41.0	52.4	52.8	Northward .	1	Clouds 10 .	Max. temp., 63°.0; min., 46°.7.

MAY, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°	°	°				
24	6 A. M.	28.045	55.2	51.3	48.0	51.3		51.6	52.2	S.W. . .	1	S.K.S.&C.S 10	Late. Quantity of rain fallen in these
	9	.046	55.5	53.8	50.0	52.7		53.5	53.6	W. . . .	1	S. & K. S. 10	twenty-four hours 0.658 *in.*
	Noon.	.036	56 4	57.1	53 4	56.7		56.7	56.7	W. . . .	1	S. & K. S. 10	
	3 P. M.	.034	57.0	57.0	52.9	55.9		57.1	56.8	S'd and E'd	1	S. & K. S. 10	
	6	.062	58.0	54.6	51.5	53.8		55.4	55.2	S.E. . . .	1	K. & K. S. 10	
	9	.084	62.1	52.4	49.5	52 0		53.5	53.0	W.S.W. .	1	K. & K. S. 10	
	Midn't.	.112	60.8	51.5	49.1	50.9	44.0	52.0	52.1	N.W. . .	2	K. & K. S. 10	Max. temp., 58°.2; min., 49°.6.
25	6 A. M.												
	9	.128	56.3	52.9	48.6	53.1		53.2	53.0	S. . . .	1	K. & K. S. 10	Quantity of rain fallen 1.784 *in.*
	Noon.	.168	61.0	53.8	48.1	53.1		54.0	53.8	N.W. . .	5	Rain . . .	
	3 P. M.	.164	66.6	52.5	48.8	51.5		52.6	52.7	N.W. . .	2	Rain . . .	
	6	.144	62.2	51.6	48.6	50.9		52.1	52.3	N.E. . . .	1	K. & K. S. 10	
	9	.154	62.5	50.9	47.6	50.0		51.3	51.3	E.S.E. . .	1	K. & K. S. 10	
	Midn't.	.182	62.2	49.2	47.6	48.6	44.3	50.0	52.2	E.S.E. . .	1	Rain . . .	Max. temp., 55°.3; min., 49°.6.
26*	6 A. M.	.272	58.0	46.0	44.4	45.7		46.8	47.4	S. . . .	1	K. & K. S. 10	
	9	.368	54.8	45.4	42.3	45.0		45.1	45.8	N. . . .	2	C.K.&K.S. 10	
	Noon.	.360	58.8	54.4	48.6	52.5		54.5	54.2	N.N.W. .	2	C. & C. S. 5	
	3 P. M.	.350	60.0	54.8	48.6	53.6		56.9	56.7	S. . . .	1	C. 1 . . .	
	6	.338	58.7	49.5	45.3	47.6		51.0	51.5	Calm . .	0	0	
	9	.333	59.0	45.3	42.6	44.6		46.5	47.5	N.N.W. .	1	0	[min., 42°.7.
	Midn't.	.295	60.5	39.7	37.4	39.3	35.2	41.4	43.0	Northward .	1	S. & C. S. 2	Taken at 1h. 30*m.* Max. temp., 59°.2;
27	7 A. M.	.200	54.7	41.3	39.8	41.0		41.3	41.7	Calm . .	0	S.K.S&C.K.9	
	9	.206	53.5	43.0	41.0	42.6		42.5	43.7	N.E. . . .	1	S. & K. S. 10	
	Noon.	.148	56.4	50.8	47.4	49.7		49.3	49.6	N.W. . .	1	S. & K. S. 10	
	3 P. M.	.112	60.8	49.4	46.6	48.1		49.2	49.6	Calm . .	0	S. & K. S. 10	
	6	.117	63.7	47.7	44.6	46.4		47.5	48.5	N.W. . .	1	S. & K. S. 10	
	9	.108	64.3	46.8	44.4	46.6		47.0	47.8	N.W. . .	1	S. & K. S. 10	
	Midn't.	.096	63.0	46.0	43.7	45.3	34.3	46.4	46.9	N.W. . .	1	S. & K. S. 10	Max. temp., 49°.8; min., 40°.6.
28	7 A. M.	.095	56.7	46.7	43.7	46.8		46.7	47.5	N.W. . .	1	S. & K. S. 9	
	9	.112	55.7	50.0	44.4	49.7		49.8	50.3	N.E. . . .	1	S. & K. S. 9	
	Noon.	.151	62.2	62.2	51.8	60.8		62.2	61.6	Calm . .	0	C. K. 7 . .	
	3 P. M.	.160	65.3	63.0	53.6	62.6		62.0	61.6	Calm . .	0	K. S. & C. 10	
	6	.147	61.7	55.6	49.5	53.8		56.6	56.4	Calm . .	0	K. S. & C. 10	
	9	.153	63.3	50.5	46.6	49.5		52.0	52.0	Calm . .	0	K. S. & C. 10	
	Midn't.	.140	64.0	48.5	45.0	47.4	39.5	49.8	50.4	N.E. . . .	1	K. S. & C. 10	Max. temp., 63°.0; min., 45°.0.
29	7 A. M.	.106	56.4	45.0	41.7	44.4		45.7	46.2	Calm . .	0	S. & K. S. 10	
	9	.122	56.5	51.7	47.4	50.6		50.3	50.8	Calm . .	0	S. & C. S. 10	
	Noon.	.137	59.6	60.7	52.2	57.9		57.4	57.6	W. . . .	1	S. & C. S. 10	
	3 P. M.	.133	62.2	63.5	53.1	61.5		62.3	62.5	S'd and E'd	1	C. K. 9 . .	
	6	.166	61.0	56.7	50.6	55.4		58.2	58.2	Calm . .	0	K. S. & C. 3	
	9	.208	60.1	51.3	47.2	50.2		52.3	52.6	N.W. . .	Air.	C. S. 3 . .	
	Midn't.	28.234	65.5	45.7	42.8	44.6	38.7	46.8	47.4	N.E. . . .	Air.	C. S. 5 . .	Max. temp., 63°.3; min., 45°.7.

* At 12h. 14*m.* a moderate earthquake shock for about ten seconds. The amount of motion was considerable, though the wave seemed to move very slowly. The city clocks were stopped, yet so gentle was the movement that some persons were not aware of it. S. L. P.

MAY, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Max.	Min.	Direction.	Force.		
		Inches.	°	°	°	°	°	°	°				
17	7 A. M.	28.168	55.4	45.7	44.6	45.5		47.2	48.7	Calm . .	0	C. & C. S. 1	
	9	.170	56.4	53.8	52.0	53.4		53.5	54.4	Calm . .	0	C. & C. S. 1	Smoky.
	Noon.	.153	59.1	61.9	56.3	60.3		62.8	62.4	Eastward .	1	C. & C. S. 1	Do.
	3 P. M.	.122	61.8	67.0	58.1	65.3		66.7	66.3	Southward .	1	C. & C. S. 3	
	6	.126	61.7	59.3	53.8	57.2		60.7	61.0	Calm . .	0	0	C. around horizon.
	9	.150	59.6	52.3	49.1	51.3		54.3	55.5	Calm . .	0	0	Do.
	Midn't.	.136	58.0	52.3	48.8	51.3	41.1	53.2	54.2	Northward .	1	0	Max. temp., 61°.6; min., 48°.0.
18	7 A. M.	.154	53.5	44.9	42.6	44.8		46.2	47.7	Calm . .	0	0	C. around horizon.
	9	.166	54.7	53.0	49.7	52.5		53.0	53.7	N.W. . .	2	C. 1 . . .	
	Noon.	.156	59.4	65.1	56.5	63.7		64.2	64.0	W. . . .	1	C. & C. S. 1	
	3 P. M.	.124	62.0	68.6	56.9	66.6		68.3	68.0	W.S.W. .	1	C. & C. S. 1	
	6	.143	61.7	60.3	53.1	57.6		61.6	61.7	Calm . .	0	0	C. around horizon.
	9	.173	59.0	51.8	48.1	50.4		53.8	54.7	E. . . .	1	0	
	Midn't.	.168	57.0	49.5	46.2	48.7	38.0	51.0	51.8	N.E. . . .	1	0	Max. temp., 68°.0; min., 46°.0.
19	7 A. M.	.160	53.2	43.4	41.0	43.2		44.8	46.4	N.E. . . .	Air.	0	
	9	.184	54.0	54.6	51.1	54.3		52.6	53.4	N.W. . .	Air.	0	
	Noon.	.196	58.5	63.7	55.6	61.7		61.5	61.7	N.W. . .	1	0	
	3 P. M.	.198	62.2	66.7	56.7	64.4		66.4	66.0	W.S.W. . .	1	0	
	6	.190	60.5	57.0	54.0	56.3		59.6	59.6	Calm . .	0	0	
	9	.160	57.5	51.3	47.6	50.0		53.8	54.6	Calm . .	0	0	[temp., 66°.4; min., 46°.6.
	Midn't.	.140	56.0	47.8	45.0	47.4	38.2	49.4	51.0	N.W. . .	1	S. & C. S. 1	Over mountains to eastward. Max.
20	7 A. M.	.123	51.8	43.3	41.2	42.8		44.7	45.5	S.E. . . .	1	C. & C. S. 2	Late.
	9	.136	53.1	52.3	49.1	51.3		51.3	52.6	Calm . .	0	C. & C. S. 3	
	Noon.	.118	57.6	61.5	54.9	59.7		61.3	61.3	Calm . .	0	C. & C. S. 3	
	3 P. M.	.108	60.1	64.5	55.6	62.6		63.5	62.7	S.W. . .	1	C. & C. S. 6	
	6	.128	59.8	56.7	51.3	54.9		58.2	58.8	Calm . .	0	S. & C. S. 2	
	9	.120	56.5	50.5	46.8	49.1		52.2	52.5	E. . . .	Air.	S. & C. S. 3	
	Midn't.	.094	55.1	46.8	44.1	46.2	37.6	48.3	49.4	Eastward .	Air.	S. & C. S. 9	Max. temp., 63°.6; min., 45°.5.
21	7 A. M.	.080	52.7	44.7	42.8	43.7		45.3	46.5	Calm . .	0	0	C. around horizon.
	9	.082	53.3	51.3	47.4	50.4		51.3	51.4	Eastward .	1	C. & C. S. 1	Smoky.
	Noon.	.079	57.7	63.9	53.6	62.0		63.5	62.6	S.W. . .	1	C. & C. S. 2	
	3 P. M.	.068	61.3	64.0	54.7	62.4		64.0	63.4	S.W. . .	1	C. S. & S. 9	
	6	.066	59.3	55.9	50.9	54.0		57.5	57.7	Calm . .	0	C. & C. S. 9	
	9	.052	55.7	50.5	47.0	49.1		52.0	52.4	Calm . .	0	C. & C. S. 5	
	Midn't.	.052	55.8	48.5	45.3	47.0		49.7	50.6	N. eastward	Air.	C. & C. S. 8	Max. temp., 65°.3; min., 44°.7.
22	6 A. M.	.124	53.3	47.0	45.5	46.4		47.4	48.0	Southward .	Air.	Fog . . .	Late.
	9	.176	54.0	50.1	47.6	49.1		50.0	50.3	S. eastward	1	Fog . . .	
	Noon.	.184	57.1	62.0	50.6	52.5		53.7	53.8	Westward .	1	S. & K. S. 10	Fog.
	3 P. M.	.179	61.7	57.0	52.0	55.6		56.0	55.7	Calm . .	0	S. & K. S. 10	
	6	.169	59.7	51.7	48.4	50.4		52.7	53.2	N.E. . . .	1	S. & K. S. 10	
	9	.214	57.8	49.4	47.0	48.4		50.2	51.0	N.E. . . .	1	S. & K. S. 10	[56°.3; min., 46°.3.
	Midn't.	.214	56.8	47.9	45.7	47.0	40.8	48.6	49.0	N.E. . . .	2	K.K.S.&C.K. 7	Taken an hour late. Max. temp.,
23	7 A. M.	.224	53.8	47.0	45.0	46.6		47.5	48.2	Calm . .	0	K. S. & C. 5	
	9	.266	53.8	51.1	48.4	50.4		51.3	51.4	Calm . .	0	K. & C. K. 4	
	Noon.	.228	57.8	60.5	53.1	59.0		60.5	59.8	N. . . .	1	0	Smoky.
	3 P. M.	.175	60 0	62.2	54.3	61.0		62.8	62.3	S.W. . .	1	C. & C. S. 3	
	6	.168	59.0	55.5	50.4	53.6		56.8	56.8	N.E. . . .	1	K. & C. S. 2	
	9	.133	57.4	52.7	49.3	51.8		53.7	54.0	N.E. . . .	1	Clouds 10 .	
	Midn't.	28.094	57.2	51.7	48.6	51.1	41.0	52.4	52.8	Northward .	1	Clouds 10 .	Max. temp., 63°.0; min., 46°.7.

JUNE, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Max.	Min.	Direction.	Force.		
		Inches.	°	°	°	°	°	°	°				
4	7 A. M.	27.952	60.0	52.6	48.0	51.5		52.8	52.7	Calm . .	0	S. & K. S. 10	
	9	.985	59.5	54.7	49.1	53.6		54.6	54.7	S.W. . .	3	S. & K. S. 10	
	Noon.	.952	60.7	60.1	54.3	58.7		59.7	59.4	S.W. . .	2	S. & K. S 10	
	3 P. M.	.920	63.6	59.8	54.9	59.0		59.8	59.5	Calm . .	0	S. & K. S. 10	
	6	.923	63.3	55.4	52.5	54.9		56.1	56.0	N.E. . .	1	S. & K. S. 10	
	9	. 87	65.7	54.2	51.3	53.8		54.6	54.8	N.W. . .	1	S. & K. S. 10	
	Midn't.	27 958	63.3	53.7	50.2	53.1	43.0	54.3	54.5	Southward .	3	S. & K. S. 10	Max. temp., 60°.2; min., 49°.3.
5	7 A. M	28.123	59.1	50.3	47.2	49.7		50.5	51.0	N.E. . . .	2	Rain . . .	Quantity of rain fallen during the day,
	9	.106	58.0	51.1	48.1	50.6		51.2	51.7	N.E. . . .	3	Rain . . .	0.800 in.
	Noon.	.122	62.4	53.2	49.3	52.0		53.0	53.2	N.E. . . .	2	S. & K. S. 10	
	3 P. M.	.106	63.1	57.3	51.3	56.7		57.8	57.5	S.E. . . .	1	C. & K. 6 .	
	6	.143	63.2	50.8	47.6	49.7		52.7	53.0	Calm . .	0	C. & S. 6 .	
	9	.138	60.8	48.0	45.5	47.2		48.7	49.8	Calm . .	0	S. & C. S. 8	
	Midn't.	.157	64.3	48.5	43.2	44.8	40.4	66.4	47.6	N.E. . . .	1	S. & C. S. 9	Max. temp., 58°.4; min., 47°.2.
6	7 A. M.	.182	60.0	46.0	43.7	45.7		46.3	47.0	Calm . .	0	S. & K. S. 10	Quantity of rain fallen during the day,
	9	.225	57.0	48.5	45.9	47.6		48.4	49.0	Calm . .	0	S. & K. S. 10	0.823 in.
	Noon.	213	61.3	54 0	49.1	52.9		53.8	53.8	N.E. . . .	1	S. & K. S. 10	
	3 P. M.	.234	63.7	49.7	47.4	49.5		50.2	50.4	E. . . .	2	Rain . . .	
	6	.246	62.4	48.5	46.4	48.0		48.8	49.7	S'd and E'd	1	Rain . . .	
	9	.233	62.5	48.0	45.9	47.2		48.4	49.4	Calm . .	0	S. & K. S. 10	Clouds breaking.
	Midn't.	.250	62.7	46.8	45.0	46.8	40.3	47.2	48.3	Calm . .	0	S. & K. S. 10	Max. temp., 49°.3; min., 46°.7.
7	7 A. M.	.204	57.6	43.8	42.3	43.9		44.4	45.3	Calm . .	0	S. & K. S. 2	
	9	.219	55.7	49.2	47.0	48.8		48.8	49.3	Calm . .	0	S. K. S. & C. 2	
	Noon.	.222	58.6	55.8	51.1	54.5		56.3	56.0	S.W. . .	1	C. & K. 2 .	
	3 P. M.	.192	61.6	57.5	51.8	56.3		58.2	57.8	S.W. . .	1	C. & K. 2 .	
	6	.205	63.2	52.2	48.8	51.5		52.7	53.2	Calm . .	0	K. S. & C. 8	
	9	.190	60.0	49.3	47.2	48.6		50.0	50.7	N.E. . . .	1	K. S. 10 . .	Halo around moon.
	Midn't.	.180	59.5	47.2	45.3	46.4	39.0	47.7	48.4	N.E. . . .	1	K. & K. S. 10	Max. temp., 58°.3; min., 44°.7.
8	7 A. M.	.195	58.4	43.7	42.3	43.0		44.2	45.2	Calm . .	0	C. & K. 7 .	
	9	.223	56.0	47.5	46.2	47.0		47.7	48.3	Calm . .	0	K. & C. S. 6	
	Noon.	.234	57.7	55.1	51.3	53.8		55.7	55.3	S.W. . .	1	C. & K. 4 .	
	3 P. M.	.225	61.4	57.6	52.0	56.5		58.0	57.7	S.W. . .	2	0	K. over Andes.
	6	.230	59.3	52.5	48.8	50.9		53.3	53.7	Southward .	Air.	C. & K. 9 .	Lunar halo.
	9	.242	59.4	49.9	47.2	48.6		50.7	51.2	Southward .	1	S. & C. S. 10	
	Midn't.	.252	60.3	48.0	46.2	47.2	39.0	49.0	49.8	N.E. . . .	1	S. & K. S. 10	Max. temp., 58°.7; min., 44°.7.
9	6 A. M.												
	9	.288	57.0	49.4	47.2	48.6		49.5	50.0	Calm . .	0	S. & K. S. 10	
	Noon.	.289	59.4	53.3	49.3	52.0		52.6	52.6	Calm .	0	S. & K. S. 10	
	3 P. M.	.304	62.4	53.0	48.8	52.0		53.2	53.1	Eastward .	Air.	K. & K. S. 10	
	6	.326	61.3	50.5	47.2	50.0		5 .0	51.5	Calm . .	0	K. & K. S. 10	
	9	.346	59.5	48.2	45.5	47.0		48.9	49.5	N.E. . . .	1	K. & K. S. 10	
	Midn't.	.383	58.3	48.4	45.5	47.6	41.2	48.9	49.7	Calm . .	0	K. & K. S. 9	Max. temp., 53°.6; min., 47°.3.
10	6 A. M.	.442	56 0	43.8	41.2	43.9		45.2	45.8	Calm . .	0	C. S. 1 . .	Late.
	9	.444	54.7	49.3	45.9	48.4		49.7	50.1	N'd and W'd	1	0	
	Noon.	.429	56.3	54.0	48.8	52.5		53.7	53.5	W. . . .	Air.	K. 1 . . .	
	3 P. M.	.395	61.3	55.6	49.3	54.0		55.8	55.4	W. . . .	Air.	C. & K. 1 .	
	6	.346	59.6	47.4	43.5	46.2		48.6	48.8	Eastward .	Air.	C. & C. S. 3	
	9	.330	55.0	42.0	39.5	41.0		43.3	44.8	Calm . .	0	C. & C. S. 5	
	Midn't.	28.294	57.0	39.3	37.4	38.4	34.5	40.4	42.3	E. . . .	Air.	C. & C. S. 6	Max. temp., 56°.5; min., 42°.0.

MAY, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register.			Direction.	Force.		
							Sky.	Max.	Min.				
		Inches.	°	°	°	°	°	°	°				
30	7 A. M.	28.252	59.3	46.8	44.6	46.4		47.3	48.0	Calm . .	0	S. & K. S. 10	
	9	.260	57.2	49.0	46.2	48.0		48.8	49.4	Calm . .	0	S. & K. S. 10	
	Noon.	.224	57.4	54.0	50.0	52.7		53.4	53 3	Calm . .	0	S. & K. S. 10	
	3 P. M.	.228	58.6	55.5	51.5	54.5		55.4	55.2	Calm . .	0	S. & K. S. 10	
	6	.233	59.5	51.3	48.8	50.9		51.6	52.0	Eastward .	1	S. & K. S. 10	
	9	.259	59.2	48.9	46.8	48.0		49.3	50.2	N.W. . .	2	S. & C. S. 7	
	Midn't.	.230	60.6	47.1	45.5	46.4	40.7	48.1	49.0	N. eastward	1	S. 3 . . .	Max. temp., 55°.4; min., 46°.7.
31	7 A. M.	.180	58.0	42.5	40.8	42.1		43.3	44.5	Calm . .	0	C. & C. S. 3	At 0h. 59m. A. M., slight earthquake; two shocks. E. R. S.
	9	.185	56.8	50.3	48.0	49.5		48.8	49.5	Calm . .	0	C. & C. S. 3	
	Noon.	.156	59.3	63.0	54.5	61.0		61.3	60.7	Calm . .	0	C. & C. S. 5	
	3 P. M.	.127	62.4	67.0	54.7	64.6		64.0	63.7	Calm . .	0	C. & C. S. 7	
	6	.122	60.6	56.4	50.9	54.0		57.3	57.4	Southward .	1	C. & C. S. 1	
	9	.098	57.2	50.5	47.4	49.5		51.8	52.3	Northward .	1	0	
	Midn't.	28.071	54.1	48.0	45.0	47.4	37.5	48.6	49.3	N. eastward	1	0	Max. temp., 64°.5; min., 44°.0.

JUNE, 1851.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register.			Direction.	Force.		
							Sky.	Max.	Min.				
		Inches.	°	°	°	°	°	°	°				
1	7 A. M.	28.056	50.7	39.5	37.0	38.6		40.7	42.2	Calm . .	0	C. 1 . . .	
	9	.088	51.5	49.8	46.8	49.1		49.5	50.0	Calm . .	0	0	
	Noon.	.070	54.6	53.8	50.6	52.9		54.2	54.2	S.W. . .	2	K. & C. K. 2	
	3 P. M.	.070	59.7	53.3	50.2	52.2		53.8	53.8	S.W. . .	2	K. S. & S. 10	
	6	.056	60.4	50.7	49.1	50.0		51.3	51.5	S.W. . .	1	S. & K. S. 10	
	9	.054	60.5	49.5	48.1	48.8		49.8	50.7	Westward .	1	Fog 10 . .	Late.
	Midn't.	.053	60.8	49.7	48.0	48.4	34.5	49.6	50.2	N.W. . .	2	Fog 10 . .	Max. temp., 55°.7; min., 41°.8.
2	7 A. M.	.010	57.8	47.3	46.4	46.8		47.4	48.0	S.W. . .	1	Fog 10 . .	Earthquake began at 6h. 4m. 14s. P. M.; strongest at 6h. 4m. 30s.; ended at 6h. 4m. 44s., preceded by a rumbling noise. J. M. G.
	9	.038	56.4	48.6	47.2	48.0		48.4	49.0	N.W. . .	3	Fog 10 . .	
	Noon.	28.022	57.7	48.7	47.0	48.0		49.1	49.6	Calm . .	0	Fog 10 . .	
	3 P. M.	27.990	61.8	49.0	47.4	48.4		49.2	49.6	Southward .	1	S. & K. S. 10	
	6	.991	60.6	47.8	46.2	47.0		48.3	49.2	N.E. . .	1	S. & K. S. 10	
	9	.989	59.4	46.5	44.6	45.7		47.0	48.0	N.E. . . .	1	S. & K. S. 3	
	Midn't.	.975	58.6	45.0	43.2	44.1	40.6	45.5	46.7	N.E. . . .	1	S. & C. 10 .	Max. temp., 51°.3; min., 45°.3.
3	7 A. M.	.992	59.8	44.5	43.2	43.9		44.8	46.0	Calm . .	0	K.S.S.&C.S.10	
	9	.983	57.2	48.2	46.2	47.2		47.8	48.4	Southward .	1	S. & K. S. 9	
	Noon.	27.974	59.7	56.6	51.5	54.9		55.5	55.0	Calm . .	0	S. & K. S. 10	
	3 P. M.	28.004	62.6	57.8	51.8	56.5		57.2	57.0	Calm . .	0	S. & K. S. 10	
	6	28.010	62.4	53.7	50.0	52.7		54.0	54.2	N.E. . . .	3	S. & K. S. 10	Few drops of rain during the evening.
	9	27.991	62.6	52.5	49.5	51.5		52.7	53.0	N.E. . . .	1	S. 10 . . .	
	Midn't.	27.922	65.0	49.8	47.4	49.1	39.3	50.2	50.8	N.W. . .	3	S. 10 . . .	Max. temp., 57°.3; min., 44°.8.

JUNE, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register.			Direction.	Force.		
							Sky.	Max.	Min.				
		Inches.	°	°	°	°	°	°	°				
18	7 A. M.	28.089	55.7	41.7	38.0	41.5		42.0	43.3	N. eastward	Air.	S. K.S. & C. 9	
	9	.095	53.8	45.4	43.0	44.6		44.8	45.7	Calm . .	0	S. K.S. & C. 3	
	Noon.	.113	56.7	55.1	49.3	53.6		54.2	54.2	Calm . .	0	K. C.K. & S. 8	
	3 P. M.	.113	59.0	58.5	51.5	57.4		58.6	58.2	S.W. . .	2	K.C.K.& C.S.9	
	6	.129	57.7	51.8	47.6	50.4		58.3	53.4	N.E. . .	1	S. 1 . . .	
	9	.133	56.4	46.8	43.7	45.5		48.0	48.7	N.E. . .	3	C. & S. 5 .	
	Midn't.	.207	57.3	46.8	43.9	45.5	36.5	47.3	48.0	Calm . .	0	K. C.K. & S.9	Max. temp., 59°.2; min., 47°.7.
19	6 A. M.	.248	54.0	45 0	42.6	44.6		45.0	46.0	S.S.E. . .	2	S. 10 . . .	Lunar halo.
	9	.295	54.2	48.5	45.7	47.4		47.7	48.3	N.W. . .	3	S 10 . . .	
	Noon.	.288	56.8	58.5	52.7	56 5		57.0	56.5	Calm . .	0	S. 10 . . .	
	3 P. M.	.333	58.0	56.8	50.9	55.2		56.0	55.7	Calm . .	0	S. 10 . . .	
	6	.330	58.8	52.5	48.6	51.8		52.8	53.0	N.E. . .	2	S. 10 . . .	
	9	.320	57.0	51.0	47.4	50.0		51.3	51.7	N.E. . .	1	S. 10 . . .	
	Midn't.	.390	59.6	49.9	47.0	49.1	38.9	50.3	50.7	N.E. . .	Air.	S. 10 . . .	Max. temp., 58°.2; min., 45°.2.
20	7 A. M.	.260	54.6	49.3	46.8	48.6		49.6	50.0	N.E. . .	Air.	S. 10 . . .	At 7h. 31m. 15s. P. M., a quick earthquake shock. S. L. P.
	9	.253	54.8	52 4	48.8	51.5		51.7	52.0	N.E. . .	Air.	S. 10 . . .	
	Noon.	.241	55.7	54.0	50.2	53.1		53.6	53.6	S. westward	Air.	S. 10 . . .	
	3 P. M.	.216	61.7	53.3	49.5	52.0		53.2	53.3	Calm . .	0	S. 10 . . .	Slight rain at intervals during the afternoon.
	6	.235	58.3	51.8	48.6	51.1		52.0	52.3	N.W. . .	1	S. 10 . . .	
	9	.238	58.0	51.0	48.0	50.2		51.2	51.6	N.E. . .	1	S. 10 . . .	
	Midn't.	.288	60.3	49.8	47.6	49.1	43.3	50.3	51.0	N.E. . .	1	Rain . . .	Slight. Max. temp., 54°.3; min., 49°.0.
21	7 A. M.	.272	56.7	44.2	43.2	43.9		44.0	45.2	N.E. . .	2	Fog 10 . .	
	9	.289	55.0	50.5	48.8	50.0		50.7	51.2	N.E. . .	Air.	C. 1 . . .	Fog around base of mountains.
	Noon.	.264	56.6	55.3	51.8	53.8		55.8	55.3	Calm . .	0	0	Do. do.
	3 P. M.	.238	58.2	58.4	53.4	57.2		59 0	58.7	Calm . .	0	C. & K. 5 .	
	6	.256	58 8	54.4	51.5	52.9		55.3	55.2	Calm . .	0	K. & S. 7 .	
	9	.287	57.9	51.6	49.1	50.6		52.0	52.3	N.E. . .	1	S. 10 . .	
	Midn't.	.311	57.4	49.4	47.2	48.4	39.7	50.4	51.0	Calm . .	0	S. 1 . . .	Max. temp, 59°.7; min., 44°.7.
22	7 A. M.	.351	56.4	47.9	46.6	47.2		48.4	49.0	S.W. . .	1	K. S. & C. 9	Heavy fog around mountains.
	9	.356	55.4	51.6	48.4	50.4		51.8	52.0	S.E. . .	2	C. & S. 2 .	Do. do.
	Noon.	.338	56.6	55 3	51.1	54.5		55.8	55.6	S.W. . .	3	K. S. 5 . .	
	3 P. M.	.315	60.0	57.7	52.0	56.5		57.7	57.5	S.W. . .	2	0	K. & S. around horizon.
	6	.321	59.9	52.6	49.1	51.3		54.0	54.3	N.E. . .	1	0	Do.
	9	.330	57.6	46.2	43.7	45.0		47.8	48.7	Calm . .	0	0	Do.
	Midn't.	.319	56.8	44.0	41.9	43.0	39.3	45.2	46.6	N.E. . .	1	0	Do. Max. temp., 58°.7; min., 46°.2.
23	7 A. M.	.294	55.2	40.4	38.9	40.3		41.2	42.6	Calm . .	0	C. & C. S. 6	At 7h. 27m. 15s. P. M., a shock, momentary, but sharp. At 7h. 27m. 20s. to 25s., a second, more moderate, accompanied by a loud and distinct [rumbling. Late. E. R. S.
	9	.302	54.2	45.6	43.2	44.4		45.2	46.2	Calm . .	0	S. & K. S. 10	
	Noon.	.280	56.4	59.3	52.5	57.2		59.2	58.8	N.W. . .	1	S. 10 . . .	
	3 P. M.	.294	58.4	59.0	51.3	57.6		58.7	58.5	S.W. . .	Air.	S. 10 . . .	
	6	.322	57.3	52.0	48.8	50.9		52.6	53.3	Calm . .	0	C. S. 1 . .	
	9	.330	56.3	46.3	43.9	45.5		47.1	48.3	Calm . .	0	0	
	Midn't.	.306	53.7	43.1	40.3	42.3	34.7	43.7	45.3	Calm . .	0	0	Max. temp., 60°.3; min., 41°.7.
24	7 A. M.	.260	53.7	39.7	37.4	38.9		40.3	41.8	N.E. . .	1	C. & C. S. 2	
	9	.260	52.7	46.5	43.9	45.9		45.6	46.5	Calm . .	0	C. 1 . . .	
	Noon.	.225	55.4	58.3	49.5	56.5		56.7	56.4	S.W. . .	1	C. & C. S. 8	
	3 P. M.	.167	59.0	62.5	52.7	60.3		60.5	60.2	Calm . .	0	C. & C. S. 7	
	6	.168	57.4	54.0	47.4	52.7		55.1	55.3	N.E. . .	1	C. & C. S. 1	
	9	.152	62.2	48.0	43.7	46.6		49.3	50.2	N.E. . .	1	0	
	Midn't.	28.135	57.8	44 5	40.3	43.5	35.2	45.3	46.5	S.E. . .	1	0	Max. temp., 60°.7; min., 40°.9.

JUNE, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Register. Max.	Register. Min.	Direction.	Force.		
		Inches.	°	°	°	°	°	°	°				
25	7 A. M.	28.141	56.1	43.4	40.3	43.2		43.4	44.6	N.W. . .	1	C. 3 . . .	
	9	.159	52.6	51.3	45.5	50.2		50.8	51.3	Calm . .	0	C. 2 . . .	
	Noon.	.184	57.0	62.8	52.7	61.0		60.2	59.6	Calm . .	0	C. 2 . . .	
	3 P. M.	.178	61.0	65.0	54.9	63.5		64.5	64.0	Southward .	2	C. 2 . . .	C. scattered.
	6	.200	58.8	56.5	50.6	55.2		57.5	57.4	S. eastward.	1	0	C. around horizon.
	9	.223	58.1	49.0	45.3	48.0		50.6	51.2	N. eastward	1	0	
	Midn't.	.195	54.0	44.4	42.1	43.5	36.3	45.7	46.7	S. eastward	2	0	Max. temp., 60°.0; min., 40°.2.
26	6 A. M.	.164	51.5	42.5	39.3	42.8		43.0	44.4	Calm . .	0	C. & C. S. 4	Half hour late.
	9	.180	51.3	47.1	45.0	47.2		46.5	47.3	Calm . .	0	C. & C. S. 4	
	Noon.	.180	55.0	61.8	52.2	59.2		58.3	58 2	S.S.E. . .	1	C. & C. S. 4	
	3 P. M.	.180	60.1	65.0	54.5	62.4		63.3	62.8	Southward .	1	0	
	6	.207	58 2	55.7	49.3	54.3		56.8	56.8	Calm . .	0	0	
	9	.200	56.0	48.5	43.9	46.6		50.0	50.5	N.E. . . .	1	0	
	Midn't.	.193	54.3	44.5	41.7	43.7	38.6	45.8	46.8	N.E. . . .	1	0	Max. temp., 63°.5; min., 43°.2.
27*	7 A. M.	.198	56.0	38.8	36.3	37.8		40.2	41.8	Calm . .	0	C. 1 . . .	
	9	.206	52.0	46.3	43.7	45.9		45.6	46.4	Calm . .	0	0	Smoky. Scattered C.
	Noon.	.216	56.0	57.8	50.9	56.1		55.7	55.5	S.W. . .	1	0	Do.
	3 P. M.	.186	57.5	60 5	51.8	59.0		59.6	60.0	W.S.W. .	1	0	
	6	.213	57.1	53.2	48.1	52.2		54.4	54.5	N. eastward	Air.	0	C. to westward over mountains.
	9	.226	56.0	47.2	43.7	45.7		48 6	49.3	N.E. . . .	1	0	
	Midn't.	.230	59.0	42.0	39.5	41.0	35.8	43.3	44.6	N.E. . . .	Air.	0	Max. temp., 60°.3; min., 41°.4.
28	7 A. M.	.222	53.0	38.6	37.0	38.0		39.3	41.0	N.E. . . .	Air.	0	C. and S. to westward, and over mountains to E.
	9	.237	52.3	46.1	43.7	45.5		45.0	46.0	N.W. . .	1	C. & S. 3 .	
	Noon.	.221	55.0	56.8	50.4	55.4		55.7	55.4	S.W. . .	1	C. & S. 8 .	
	3 P. M.	.222	57.2	58.0	52.0	56.5		57.5	57.0	S.W. . .	2	C. 2 . . .	
	6	.220	56.2	53.0	48.8	50.0		53.8	54.0	W. . . .	1	0	
	9	.217	54.7	45.5	43.0	44.6		47.2	48.0	N.E. . . .	1	0	
	Midn't.	.212	56.4	42.3	40.3	41.7	35.5	43.5	44.8	Southward .	1	0	Max. temp., 58°.0; min., 40°.3.
29	7 A. M.	.184	50.3	38.3	37.0	37.8		39.2	40.7	Calm . .	0	C. & C. S. 5	
	9	.195	50.7	43.7	42.1	43.7		43.2	44.3	S.W. . .	1	C. & S. 10 .	
	Noon.	.199	53.5	57.5	49.5	55.2		56.0	55.6	Calm . .	0	C. & S. 10 .	
	3 P. M.	.204	55.6	56.8	50.4	55.4		56.4	56.2	S.W. . .	Air.	S. C.S. & K.S.10	
	6	.217	55.7	51.5	48 6	50.9		52.0	52.3	W. . . .	3	S. 10 . . .	
	9	.217	55.2	49.5	47.2	48.8		49.8	50.4	W. . . .	3	S. 10 . . .	
	Midn't.	.216	56.3	50.0	46.8	49.5	35.8	50.0	50.5	Eastward .	3	S. 10 . . .	Max. temp., 56°.7; min., 40°.3.
30†	7 A. M.	.253	53.8	47.0	45.5	46.8		47.1	48.0	Westward .	1	S. & K. S. 10	Rain during the night. Quantity of rain measured 0.778 in.
	9	.267	53.4	48.8	46.4	48.0		48.6	49.0	Calm . .	0	Rain . . .	
	Noon.	.274	55.4	52.7	49.1	51.1		52.7	52.6	Calm . .	0	Rain . . .	
	3 P. M.	.218	58.3	54.2	51.5	52.9		54.3	54.3	Southward .	1	Rain . . .	
	6	.239	57.6	51.8	50.4	50.9		52.0	52.2	N.E. . .	1	S. 10 . .	Rain at intervals.
	9	.238	58.8	51.3	49.7	50.4		51.4	51.8	Calm . .	0	S. 10 . .	
	Midn't.	28.220	58.2	50.4	49.1	50.0	44.7	50.6	51.2	S.W. . .	3	S. 10 . .	Max. temp., 54°.5; min., 47°.2.

* At 0h. 51m. 50s. P. M., a slight shock, unaccompanied by noise. At 3h. 39m. 45s. P. M. there was a second, followed at 3h. 39m. 55s. to 4h. 0m. 0s. P. M. by quite a strong one, accompanied by a loud noise.

† At 8h. 14m. 8s. P. M. to 8h. 14m. 50s. there was an earthquake shock, followed by a second at 8h. 14m. 55s. to 8h. 15m. 3s. P. M.; both were heavy, and accompanied by little or no rumbling.

JULY, 1851.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°	°	°				
1	7 A. M.	28.237	53.8	46.8	45.3	46.4		47.2	48.0	Calm . .	0	Fog . . .	Quantity of rain measured 0.050 *in.*
	9	.267	53.0	47.3	45.7	46.8		47.3	47.8	S. eastward.	3	Rain . . .	
	Noon.	.297	55.5	49.8	45.9	48.4		49.9	50.2	Southward .	1	Rain . . .	
	3 P. M.	.283	58.3	50.7	45.5	49.7		51.0	51.3	Calm . .	0	S. & K. S. 10	
	6	.320	58.0	48.2	44.6	47.2		48.3	49.2	Calm . .	0	S. & K. S. 9	
	9	.330	58.1	45.0	42.6	44.1		45.2	46.7	N.E. . . .	1	S. & C. S. 9	
	Midn't.	.323	59.3	43.6	41.5	43.2	40.7	43.8	45.0	Calm . .	0	S. 10 . .	Max. temp., 51°.6; min., 44°.5.
2	7 A. M.	.254	57.2	42.3	40.8	41.7		42.5	43.8	N.W. . .	1	S. & K. S. 10	
	9	.274	54.4	44.5	42.3	43.9		43.7	44.8	Southward .	1	S. & K. S. 10	
	Noon.	.243	56.5	48.0	45.0	46.6		46.7	47.3	N.W. . .	3	S. & K. S. 10	
	3 P. M.	.154	60.0	48.0	45.3	47.0		47.7	48.3	Southward .	1	S. & K. S. 10	Clouds moving from westward.
	6	.173	59.6	47.7	44.6	47.2		47.7	48.4	Southward .	1	S. & K. S. 10	
	9	.141	60.0	46.5	44.1	45.9		46.6	47.5	N. eastward	1	S. & K. S. 10	
	Midn't.	.112	58.0	49.5	45.0	48.8		49.1	50.0	N.W. . .	6	Rain . . .	Max. temp., 49°.8; min., 42°.8.
3	7 A. M.	.225	56.3	43.2	41.9	42.3		43.3	44.4	Calm . .	0	Rain . . .	Quantity of rain since July 1, 2.069 *in.*
	9	.250	55.0	46.7	44.6	45.3		45.7	46.4	Westward .	1	Rain . . .	Very slight.
	Noon.	.284	56.6	50.5	46.8	48.8		49.3	49.8	N.W. . .	1	S. & K. S. 10	
	3 P. M.	.285	60.3	50.0	46.4	48.8		49.6	50.0	S.W. . .	1	S. & K. S. 10	
	6	.307	57.2	48.7	45.9	48.1		48.7	49.5	S.S.W. . .	1	S. & K. S. 10	
	9	.330	60.2	46.7	44.6	46.2		46.8	47.8	Westward .	2	S. & K. S. 10	
	Midn't.	.330	58.6	43.5	41.9	42.6	41.3	44.0	45.6	S. eastward	1	S. 3 . . .	Max. temp., 51°.3; min., 43°.8.
4	7 A. M.	.269	54.1	40.3	39.1	39.5		40.5	42.2	Calm . .	0	S. & K. S. 10	
	9	.260	54.0	46.7	45.0	45.9		45.3	46.2	N.W. . .	Air.	S. & K. S. 10	
	Noon.	.215	56.0	53.3	49.5	51.5		52.0	52.2	W. . . .	1	S. & K. S. 10	Clouds breaking to westward.
	3 P. M.	.184	56.2	53.9	50.0	52.7		53.6	53.7	W. . . .	1	S. & C. S. 9	
	6												
	9	.201	57.2	46.5	44.1	45.7		46.8	47.8	Calm . .	0	0	S. to southwestward.
	Midn't.	.182	52.7	43.0	41.5	42.3	37.7	43.2	44.4	N.E. . . .	2	0	Max. temp., 54°.5; min., 41°.3.
5	7 A. M.	.164	52.4	41.8	39.8	41.5		41.8	43.3	N.W. . .	2	S. & K. S. 10	
	9	.153	50.8	45.0	43.0	43.9		44.2	45.0	S. eastward	Air.	S. & K. S. 10	
	Noon.	.133	52.2	52.0	48.4	50.9		51.3	51.3	S.E. . . .	Air.	S. & K. S. 10	
	3 P. M.	.150	54.8	50.0	46.4	49.5		49.5	50.1	S. eastward	Air.	S. & K. S. 10	
	6	.150	55.2	46.8	43.9	46.2		46.7	47.6	N.E. . . .	1	S. & K. S. 9	
	9	.139	56.4	46.0	43.0	45.5		45.7	46.7	Calm . .	0	K. & S. 8 .	
	Midn't.	.111	52.9	44.3	40.8	43.9	38.1	44.0	45.5	N.E. . .	2	S. & C. S. 9	Max. temp., 51°.6; min., 41°.7.
6	7 A. M.	.061	54.3	43.7	40.5	43.2		43.7	44.7	N. westward	2	S. & K. S. 10	
	9	.085	52.7	46.2	41.7	45.7		45.4	46.4	S. eastward	1	S. & K. S. 10	Clear to the westward.
	Noon.	.055	52.3	51.0	44.6	49.5		50.0	50.4	Eastward .	1	S. & K. S. 10	Do.
	3 P. M.	.060	56.3	52.5	46.2	51.1		51.8	52.4	E. . . .	4	S. & K. S. 10	Rain at 3*h.* 5*s.*
	6	.030	56.6	49.8	44.8	49.3		49.8	50.7	W. . . .	0	S. & K. S. 10	Slight rain at about 8*h.* 30*m.*
	9	.046	57.0	50.3	46.2	49.5		50.0	50.8	Southward .	1	Rain . .	Passing shower.
	Midn't.	28.026	56.4	50.0	45.5	48.6	38.7	50.7	50.6	N.E. . . .	1	S. & K. S. 10	Max. temp., 55°.2; min., 43°.3.
7	7 A. M.	27.992	53.9	48.3	45.9	47.6		48.2	48.7	N.E. . . .	3	Rain . . .	Late. At 6*h.* 42*m.* 17*s.* to 20*s.* P. M., slight earthquake shock.
	9	.997	53.8	49.3	46.6	48.1		49.0	49.4	Calm . .	0	S. & K. S. 10	
	Noon.	.999	55.3	51.7	46.4	50.6		51.2	51.3	Northward .	Air.	Rain . . .	Slight.
	3 P. M.	.936	58.0	50.0	46.6	49.1		50.1	50.3	Calm . .	0	Rain . . .	
	6	.961	56.4	48.0	45.7	47.0		48.3	49.0	Calm . .	0	Rain . . .	
	9	.943	57.8	46.2	43.0	45.7		46.3	47.4	N.E. . . .	1	S. & K. S. 10	[eight hours, 0.720 *in.* Quantity of rain during the last forty
	Midn't.	27.932	56.5	46.5	43.2	45.9	38.7	46.2	47.3	N.E. . . .	3	S. & K. S. 10	Max. temp., 51°.4; min., 45°.8.

JULY, 1851—Continued.

DATE.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Max.	Min.	Direction.	Force.		
		Inches.	°	°	°	°	°	°	°				
8	7 A. M.	27.935	55.7	47.5	45.0	46.8		47.3	48.0	N.E. . .	1	Rain . . .	Hard.
	9	.952	54.4	47.6	45.3	47.0		47.3	48.0	N.N.W. .	3	Rain . . .	Do.
	Noon.	27.972	56.3	46.0	43.7	45.0		45.7	46.5	N.W. . .	Air.	Rain . . .	Do.
	3 P. M.	28.054	59.8	42.9	41.0	42.3		42.7	43.8	N.W. . .	4	Rain . . .	Do.
	6	.136	57.3	40.3	38.6	39.8		40.0	41.6	Calm . .	0	Rain . . .	Do.
	9	.193	58 6	41.0	38.9	40.5		40.0	41.8	N.E . . .	1	S. & K. S. 10	Quantity of rain during the day 4.038 in.
	Midn't.	.229	53.9	39.0	37.6	38.4		39.1	40.7	N.E. . . .	1	K. & S. 9 .	Max. temp., 47°.7; min., 40°.3.
9	7 A. M.	.235	47.6	36.6	35.6	37.0		36.7	38.4	Calm . .	0	K. & K. S. 8	Snow very low down the Andes and
	9	.270	47.7	40.8	38.9	40.5		40.3	41.6	Calm . .	0	K. & K. S. 9	on the Coast range.
	Noon.	.256	51.1	47.0	43.9	46.4		46.4	47.0	S.W. . .	2	K. & K. S. 8	
	3 P. M.	.232	54.0	50.5	44.4	48.8		49.9	50.3	S.W. . .	1	K. 1 . . .	
	6	.229	51.9	43.9	40.3	43.5		44.9	46.0	Calm . .	0	K. 1 . . .	
	9	.227	53.8	39.2	37.4	38.6		40.0	41.8	N.E. . . .	Air.	0	K. and C. over Andes.
	Midn't.	.214	51.2	36.5	34.5	35.6	33.3	37.2	39.0	N.E. . . .	Air.	0	C. over Andes. Max. temp., 50°.3; min., 37°.7.
10	7 A. M.												
	9	.160	45.5	37.8	35.6	36.7		36.7	38.3	Calm . .	0	S. & C. S. 9	Frost.
	Noon.	.163	49.0	49.4	44.8	47.0		49.2	49.6	N.W. . .	1	S. & C. S. 9	
	3 P. M.	.146	55.2	46.7	43.0	45.7		46.7	47.3	Calm . .	0	S. & C. S. 10	
	6	.142	56.0	43.5	41.0	42.8		43.8	44.7	Calm . .	0	S. 10 . .	
	9	.133	53.7	42.3	40.3	41.7		42.4	43.7	Calm . .	0	S. 10 . .	
	Midn't.	.110	51.8	40.7	38.9	39.8	31.7	40.7	42.4	N.E. . . .	Air.	S. 10 . .	Max. temp., 49°.5; min., 35°.6.
11	7 A. M.	.020	52.8	38.0	36.5	37.4		38.1	40.0	Calm . .	0	S. & K. S. 10	
	9	.020	51.0	41.0	38.4	39.8		39.8	41.4	Calm . .	0	S. & K. S. 10	
	Noon.	.022	51.8	48.0	44.6	46.6		46.4	47.0	Calm . .	0	S. 10 . .	
	3 P. M.	.007	53.0	48.7	44.8	47.2		48.2	48.6	Calm . .	0	S. & K. S. 10	
	6	.071	52.0	45.1	42.3	44.6		44.8	45.8	Calm . .	0	S. & K. S. 10	
	9	.095	51.0	43.2	41.0	42.6		42.8	44.3	N.W. . .	1	S. & K. S. 10	
	Midn't.	.141	51.8	42.6	40.5	41.7	35.3	42.2	43.4	S.W. . .	3	S. & K. S. 10	Max. temp., 48°.8; min., 39°.0.
12	6 A. M.	.180	49.4	41.6	40.0	41.5		41.0	42.5	N.W. . .	3	S. & K. S. 10	Taken half an hour late.
	9	.216	49.0	48.1	44.8	46.6		47.0	47.5	N.W. . .	1	C. . & S. 8	
	Noon.	.226	52.4	53.1	49.1	52.2		51.8	51.8	Calm . .	0	S. & K. S. 10	
	3 P. M.	.202	54.2	55.3	50.0	53.4		53.6	53.4	Calm . .	0	S. & K. S. 10	
	6	.217	53.3	50.7	47.2	49.5		50.4	50.8	N.E. . . .	1	S. & K. S. 10	
	9	.215	53.8	48.9	45.9	48.4		48.8	49.6	N.W. . .	1	S. & K. S. 10	
	Midn't.	.179	55.0	48.5	44.8	48.0	39.7	48.5	49.3	Calm . .	0	S. & K. S. 10	Max. temp., 53°7.; min., 42°.2.
13	6 A. M.	.104	50.5	42.7	39.1	41.7		43.0	44.4	Calm . .	0	K. & S. 3 .	Half hour late.
	9	.095	49.8	48.0	44.4	47.2		46.8	47.6	S.W. . .	1	S. & K. S. 10	
	Noon.	.079	55.2	59.2	50.4	56.5		57.1	56.7	Calm . .	0	S. & K. S. 10	Smoky.
	3 P. M.	.065	55.8	61.0	50.2	58.5		58.5	58.2	Calm . .	0	S. & C. S. 10	
	6	.051	54.5	52.0	46.6	49.7		52.7	52.8	Calm . .	0	C. & C. S. 3	
	9	.036	55.4	46 4	43.0	45.5		47.4	48.2	Calm . .	0	C. & C. S. 6	Halo around moon.
	Midn't.	.019	56.0	43.5	40.5	42.3	38.2	44.4	45.5	Calm . .	0	C. & C. S. 4	Do. do. Max. temp., 59°.7; min., 48°.7.
14	7 A. M.	.020	47.8	39.1	37.2	38.4		39.4	41.2	Calm . .	0	C. 1 . . .	
	9	.038	48.6	45.5	44.1	46.4		44.7	45.4	Calm . .	0	0	
	Noon.	28.022	51.8	57.2	50.2	55.9		54.7	54.6	Calm . .	0	0	
	3 P. M.	27.994	54.5	60.7	50.2	59.0		58.7	58.4	S.W. . .	1	0	C. to westward.
	6	28.014	53.7	53.0	48.0	50.9		53.5	53.5	S.E. . . .	1	C. S. 2 . .	
	9	.014	57.0	47.0	44.4	45.9		47.8	48.8	Southward .	1	S.C.S.&K.S.9	
	Midn't.	28.023	58.4	44.7	42.8	44.0	35.5	45.3	46.3	Southward .	2	C. & S. 5 .	Max. temp., 59°.0; min., 40°.3.

JULY, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register.			Direction.	Force.		
							Sky.	Max.	Min.				
		Inches.	°	°	°	°	°	°	°				
15	7 A. M.	28.074	52.6	47.6	45.5	46.8		47.5	48.2	Calm . .	0	K. S. 10 .	
	9	.092	52.3	49.6	51.3	48.4		48.8	49.4	Calm . .	0	K. S. 10 .	
	Noon.	.072	55.0	57.2	51.1	54.7		56.7	56.3	Northward .	1	K. 2 . . .	
	3 P. M.	.027	57.6	58.6	52.0	56.5		58.0	57.7	N.W. . .	1	C. & K. 1 .	
	6	.040	56.3	53.0	47.6	50.9		53.5	53.5	N.E. . . .	Air.	C. & K. 2 .	
	9	.041	55.9	47.7	45.0	46.8		48.6	49.6	N.E. . . .	1	C. & K. 2 .	
	Midn't.	.063	55.1	47.9	45.9	47.0	42.3	47.8	48.5	S.W. . .	1	S. 10 . .	Max. temp., 58°.3; min., 46°.0,
16	7 A. M.	.068	54.4	47.6	45.9	46.8		47.5	48 0	N.W. . .	3	Rain . . .	Quantity of rain during day 0.270 in.
	9	.114	54.2	49.2	47.0	48.1		48.7	49.3	Calm . .	0	K. S. 10 .	
	Noon.	.202	58.6	51 3	47.4	50.4		50.7	51.1	N.E. . .	1	Rain . . .	Slight.
	3 P. M.	.242	57.6	51.6	47.2	50.0		51.0	51.3	N. westward	Air.	K. S. 10 . .	
	6	.302	55.8	47.4	44.4	46.6		47.5	48.4	N.E. . .	2	S. & K.S. 10	
	9	.306	54.5	43.5	40.8	42.6		43.8	45.0	Southward .	1	K. & S. 2 .	
	Midn't.	.292	52.0	40.8	38.4	39.8	38.8	40.7	42.8	N.E. . .	Air.	0	C. & S. around horizon. Max. temp., 51°.3; min., 42°6.
17	7 A. M.	.243	51.9	37.0	35.4	36.5		37.8	39.5	Calm . .	0	C. & C. S. 7	Frost.
	9	.265	49.0	42.6	41.2	42.6		42.0	43.2	Calm . .	0	S.C.S.&C.K.7	
	Noon.	.243	52.5	52.6	49.1	51.5		51.4	51.6	Calm . .	0	C. C.K. & S. 4	
	3 P. M.	.210	56.0	55.9	48.0	54.5		54.3	54.3	Calm . .	0	C. K. 1 . .	Around horizon.
	6	.253	55.0	50.8	45.7	50.0		51.3	51.7	N.E. . . .	Air.	K. & K. S. 9	
	9	.320	54.5	48.0	44.8	46.8		48.4	49.2	N.E. . . .	2	K. & K. S. 6	
	Midn't.	.275	51.7	41.8	39.8	40.8	34.8	43.0	44.4	Calm . .	0	C. & K. 5 .	Max. temp., 55°.2; min., 38°.8.
18	7 A. M.	.212	48.8	40.4	38.6	40.0		40.6	42.2	Calm . .	0	K. C. K. & S. 7	
	9	.212	48.0	43.8	42.6	43.7		43.3	44.4	Calm . .	0	C.C.K.&C.S.6	
	Noon.	.184	53.2	53.7	49.1	53.1		52.3	52.3	Calm . .	0	S. & C. S. 9	
	3 P. M.	.107	56.3	59.0	51.3	56.5		57.7	57.4	Calm . .	0	S. & C. S. 10	
	6	.084	55.0	53.3	48.1	52.5		53.7	54.0	Calm . .	0	S. & K. S. 10	
	9	.030	55.4	51.3	46.2	50.6		51.7	52.2	N.E. . . .	2	S. & K. S. 10	
	Midn't.	28.008	54.0	48.9	44.6	47.6	38.3	49.4	50.2	N.E. . . .	2	S. & K. S. 10	Max. temp., 58°.5; min., 41°.7.
19	7 A. M.	27.974	52.0	46.2	42.8	45.5		46.7	47.4	Calm . .	0	S. & C. S. 10	Late.
	9	28.033	52.3	46.5	44.1	45.5		46.1	46.8	S.W. . .	2	S. & K. S. 10	
	Noon.	.064	54.5	53.6	47.6	50.9		53.3	53.5	S.W. . .	2	S. & K. S. 10	
	3 P. M.	.060	54.7	55 0	49.1	53.1		55.0	54.7	S.W. . .	3	S. & K. S. 10	
	6	.099	54.4	50.6	47.4	50.2		51.0	51.7	Calm . .	0	S. & K. S. 10	
	9	.135	54.6	48.8	45.9	48.0		48.7	49.7	N.E. . . .	1	S. & K. S. 10	
	Midn't.	.176	54.0	47.2	45.5	47.6	42.0	47.2	48.0	Eastward .	1	C. & K.S. 10	
20	7 A. M.												
	9	.211	51.7	50.0	46.8	48.0		49.1	49.5	N. eastward	1	C. & K. 5 .	
	Noon.	.211	54.2	57.0	51.3	55.4		55.6	55.2	Calm . .	0	C. & K. 5 .	
	3 P. M.	.162	56.2	56.7	51 3	55.4		56.8	56.6	S.W. . .	2	S. 10 . . .	
	6	.149	54.8	52.3	49.5	51.8		53.3	53.3	N.W. . .	1	S. 10 . . .	
	9	.154	56.0	50.7	48.4	50.0		51.2	51.7	S. eastward	1	S. 10 . . .	
	Midn't.	.140	54.0	49.0	46.8	48.4	44.7	49.3	50.2	N. eastward	1	S. 10 . . .	Max. temp., 58°.2; min., 47°.3.
21	7 A. M.	.077	52.8	47.4	45.7	47.0		47.5	48.3	N.W. . .	4	C. & K. 4 .	A very strong wind sprung up about 4 A. M.
	9	.110	53.3	50.7	48.1	49.7		50.0	50.3	Northward .	Air.	K. & S. 9 .	
	Noon.	.131	54.7	55.7	51.8	54.3		55.8	55.6	S.W. . .	1	K. & C.K. 10	
	3 P. M.	.112	56.3	56.0	51.5	54 9		55.8	55.7	Calm . .	0	S. & K. S.10	
	6	.112	55.4	52.0	49.5	51.3		52.5	52.7	W. . . .	1	S. 10 . . .	
	9	.115	54.8	48.8	47.4	48.4		49.3	50.2	Calm . .	0	S. 10 . . .	
	Midn't.	28.109	55.7	47.8	46.4	47.0		48.0	49.0	N.E. . . .	1	S. 10 . . .	Max. temp., 56°.8; min., 47°.7.

JULY, 1851—Continued.

DATE.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register.			Direction.	Force.		
							Sky.	Max.	Min.				
		Inches.	°	°	°	°	°	°	°				
22	7 A. M.	28.138	53.6	46.7	45.5	46.4		47.0	47.6	S. eastward	Air.	S. & K. S. 10	
	9	.173	53.8	51.0	48.0	49.3		49.8	50.3	N.W. . .	Air.	S. 10 . . .	
	Noon.	.155	55.7	56.2	50.2	53.8		55.3	55.2	S.S.E. . .	1	S. 10 . . .	
	3 P. M.	.126	57.7	54.8	50.4	53.6		55.2	55.2	W.S.W. .	3	S. 10 . . .	Late.
	6	.127	59.5	50.5	48.4	49.7		50.9	51.7	Calm . .	0	S. 10 . . .	
	9	.134	58.8	49.5	47.6	48.6		49.6	50.4	N.E. . . .	1	S. 10 . . .	Few drops of rain about 9h. 30m.
	Midn't.	.109	55.3	47.4	45.9	46.8	44.6	47.7	47.4	N. eastward	Air.	0	S. & K. to northward. Max. temp., 57°.2; min., 47°.4.
23	7 A. M.	28.010	53.6	44.0	42.6	43.7		44.7	45.6	Calm . .	0	S. 10 . . .	
	9	27.992	53.0	48.5	46.4	47.4		47.8	48.4	Calm . .	0	S. 10 . . .	
	Noon.	.998	55.7	53.0	48.8	51.1		52.2	52.3	N.W. . .	Air.	S. 10 . . .	
	3 P. M.	.966	58.0	52.3	49.5	51.3		52.0	52.2	Northward .	Air.	S. 10 . . .	
	6	.904	56.1	53.0	48.0	52.2		53.2	53.5	N.E. . . .	3	S. 10 . . .	Few drops of rain during the evening.
	9	.896	58.6	57.5	48.0	57.2		57.6	57.3	N.W. . .	4	S. 10 . . .	
	Midn't.	.871	57.4	56.0	47.4	55.9	42.3	56.3	56.4	N.N.E. . .	1	S. 10 . . .	Max. temp., 59°.2; min., 45°.3.
24	7 A. M.	.817	55.2	55.5	46.2	54.5		55.3	54.8	N.W. . .	5 & 6	Rain . . .	Slight.
	9	.880	55.5	54.2	47.6	53.6		54.6	54.4	N.W. . .	5 & 6	S. & K. S. 10	Gusty.
	Noon.	.931	57.0	50.5	47.4	49.3		50.5	50.8	S.W. . .	1	Rain . . .	Clouds from north-northeast.
	3 P. M.	.937	57.5	51.6	47.6	50.6		51.3	51.5	N.E. . . .	2	Rain . . .	Quantity of rain during day, together with very slight quantity yesterday and the day before, 5.258 in.
	6	27.980	58.8	48.8	46.6	48.0		48.8	50.0	W. . . .	2	Rain . . .	
	9	28.005	60.9	49.3	46.4	48.6		49.3	50.2	N.E. . . .	3	Rain . . .	
	Midn't.	28.005	57.7	47.3	44.6	46.6	44.0	47.4	48.2	N.E. . . .	2	Rain . . .	Late. Max. temp., 58°.2; min., 47°.7.
25	7 A. M.	27.990	53.7	45.8	43.7	45.0		45.8	46.5	N.W. . .	1	Rain . . .	
	9	28.007	53.3	47.2	45.0	46.4		46.7	47.5	Calm . .	0	Rain . . .	
	Noon.	28.007	57.4	48.7	46.4	47.6		48.2	48.6	Calm . .	0	Rain . . .	
	3 P. M.	27.968	61.0	49.0	46.4	48.0		48.3	48.7	Calm . .	0	Rain . . .	
	6	28.074	59.0	46.5	45.0	45.9		46.7	47.4	N.E. . . .	1	Rain . . .	Slight.
	9	.134	60.0	45.8	43.9	44.8		45.7	46.8	N.E. . . .	1	Rain . . .	Quantity of rain for day, 3.520 in.
	Midn't.	.104	60.3	44.0	42.3	43.2	41.7	44.0	45.0	N.W. . .	1	S. 10 . . .	Max. temp., 58°.2; min., 44°.5.
26	7 A. M.	.060	54.7	43.7	42.3	43.7		43.7	44.7	Calm . .	0	S. & K. S. 10	
	9	.075	53.6	46.5	44.8	45.9		45.4	46.3	Calm . .	0	S. & K. S. 10	
	Noon.	.085	53.3	50.6	45.9	48.8		49.6	49.8	Calm . .	0	S. & K. S. 10	
	3 P. M.	.104	58.3	49.2	46.2	48.1		48.7	49.3	Calm . .	0	Rain . . .	Slight.
	6	.104	57.6	46.8	45.0	45.9		46.8	47.7	N.E. . . .	Air.	S. & K. S. 10	Rain fallen during the day not sufficient to measure.
	9	.126	57.2	46.3	44.8	45.7		46.3	47.5	Calm . .	0	S. & K. S. 10	
	Midn't.	.139	57.1	44.5	43.2	43.9	41.4	44.5	45.8	N.W. . .	1	S. 10 . . .	Max. temp., 49°7.; min., 44°.2.
27	7 A. M.	.179	53.8	43.2	41.9	42.6		43.3	44.3	Calm . .	0	S. & K. S. 9	Rain during night.
	9	.228	54.5	45.8	43.7	45.0		45.2	45.7	N.E. . . .	Air.	Rain . . .	Clouds breaking to westward.
	Noon.	.218	57.3	51.4	45.9	49.3		50.3	50.6	Calm . .	0	S. & K. S. 10	
	3 P. M.	.238	57.7	48.8	44.4	47.6		48.4	48.8	N.N.W. .	2	S. & K. S. 10	
	6	.274	56.0	44.5	41.9	43.9		44.5	45.6	N.E. . . .	1	Rain . . .	Quantity of rain during the last forty-eight hours, 1.088 in.
	9	.295	56.0	44.5	41.0	43.9		44.0	45.5	N.W. . .	5 & 6	Rain . . .	
	Midn't.	.318	53.3	42.8	41.0	42.1	39.7	42.6	43.8	N.W. . .	Air.	Rain . . .	Max. temp., 50°.7; min., 42°.0.
28	7 A. M.	.258	52.0	39.5	37.8	38.4		39.2	41.0	N.W. . .	1	Fog 10 . .	Much snow on the mountains.
	9	.276	52.3	40.6	39.1	39.8		40.0	41.7	N.W. . .	1	S. 10 . .	
	Noon.	.273	54.3	43.5	41.2	42.8		42.7	43.8	N.W. . .	1	S. 10 . .	
	3 P. M.	.192	57.0	44.5	42.3	43.5		43.8	44.8	Calm . .	0	S. 10 . .	
	6	.216	55.6	42.3	40.8	42.1		42.0	43.4	Southward .	1	S. 10 . .	
	9	.214	54.7	43.0	40.3	42.3		42.5	43.7	N.E. . . .	2	S. 10 . .	Quantity of rain during the day, 0.236 in.
	Midn't.	28.148	53.1	45.1	41.5	45.0	36.9	44.8	45.8	N.W. . .	1	S. 10 . .	Max. temp., 50°.2; min., 40°.6.

JULY, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register.			Direction.	Force.		
							Sky.	Max.	Min.				
		Inches.	°	°	°	°	°	°	°				
29	7 A. M.	28.164	52.7	50.8	45.5	51.1		50.4	50.7	S.E. . . .	1	S. 10. . .	Wind shifting.
	9	.138	53.5	54.8	48.0	53.8		54.3	54.2	E. by N. .	1	S. 10. . .	
	Noon.	.154	56.0	53.0	48.4	51.8		52.6	52.6	N.E. . .	2	Rain . . .	
	3 P. M.	.128	56.6	56.8	51.3	55.6		55.7	55.4	E. . . .	Air.	Rain . . .	
	6	.120	58.7	56.5	50.0	56.7		56.3	56.4	N.W. . .	1	S. 10. . .	
	9	.114	58.3	52.2	48.8	51.1		52.2	52.4	Northward .	1	S. 10. . .	Quantity of rain fallen 0.107 in.
	Midn't.	.094	57.6	48.8	45.7	47.6	40.7	49.3	49.8	N.E . . .	1	S. 10. . .	Max. temp., 56°.8; min., 45°.7.
30	7 A. M.	.078	53.3	47.2	44.6	46.8		47.0	47.8	Calm . .	0	S. & C. 10 .	
	9	.113	53.3	52.5	48.8	51.3		51.3	51.5	Calm . .	0	S. & C. 10 .	
	Noon.	.143	58.6	64.0	56.5	61.5		61.2	60.4	Calm . .	0	S. . . .	
	3 P. M.	.128	60.3	66.5	57.2	64.4		65.5	64.8	Calm . .	0	S. & C. S. 10	
	6	.140	59.0	55.5	51.5	54.5		56.7	56.8	S.W. . .	2	S. & C. 5 .	
	9	.164	58.5	49.3	46.4	48.6		50.8	51.4	N.E. . .	Air.	0	S. around horizon.
	Midn't.	.134	56.4	48.4	45.5	47.2	40.7	49.0	49.7	Calm . .	0	C. 5 . . .	Max. temp., 65°.5; min., 47°.5.
31	7 A. M.	.062	53.8	45.4	43.5	44.6		45.8	46.7	Calm . .	0	S. & C. S. 10	
	9	.064	53.7	53.5	50.4	52.7		52.3	52.5	Calm . .	0	S. & C. S. 10	
	Noon.	.062	57.5	61.6	55.9	59.7		59.8	59.6	N.E. . .	1	S.,K.&C.S.9	
	3 P. M.	.072	61.4	66.7	59.2	64.6		65.3	65.0	N.E. . .	1	K. S. & C. 10	
	6	.116	59.6	56.5	51.1	55.4		57.8	57.8	Calm . .	0	S. & C. 4 .	
	9	.098	59.8	51.7	48.6	50.6		53.0	53.3	N.E. . .	Air.	C. 4 . . .	[45°.8.
	Midn't.	28.099	58.0	47.5	44.6	46.4	42.5	48.6	49.5	N.E. . .	Air.	0	An hour late. Max. temp., 65°.3; min.,

AUGUST, 1851.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register.			Direction.	Force.		
							Sky.	Max.	Min.				
		Inches.	°	°	°	°	°	°	°				
1	7 A. M.	28.092	54.5	45.6	43.9	45.0		45.7	46.8	Calm . .	0	C. 7 . . .	
	9	.091	54.1	52.0	49.5	51.3		51.3	51.6	Calm . .	0	C. 4 . . .	Smoky.
	Noon.	.097	56.4	61.7	54.7	60.1		59.7	59.7	Calm . .	0	K. & C. 9 .	
	3 P. M.	.088	58.2	62.0	56.5	60.3		61.7	61.5	Calm . .	0	K. & C. 10 .	
	6	.059	57.0	56.1	52.7	55.4		56.3	56.3	N.E. . .	2	K. 9. . .	
	9	.104	58.5	49.3	47.4	48.4		50.2	50.5	E. . . .	3	K. & S. 10 .	Fog rising (?)
	Midn't.	.060	56.8	49.8	47.6	48.8	49.2	49.8	50.3	N.E. . .	3	K. & S. 7 .	Max. temp., 61°.8; min., 46°.7.
2	7 A. M.	.014	55.0	47.7	46.4	46.8		48.0	48.4	Calm . .	0	K. & C. 7 .	
	9	.043	54.8	52.0	50.0	51.3		51.8	52.2	S.W. . .	3	S. & K. S. 10	
	Noon.	28.012	55.7	54.1	51.1	53.1		54.0	54.0	S.W. . .	3	S. 10. . .	
	3 P. M.	27.995	56.2	51.7	49.1	51.1		51.7	52.0	S.W. . .	3	S. 10. . .	
	6	28.012	56.4	50.5	48.4	49.7		50.7	51.3	N.E. . .	2	Mist 10 . .	
	9	28.002	55.4	49.5	47.6	48.6		49.8	50.3	E. . . .	1	S. & K. S. 10	
	Midn't.	27.997	54.5	47.4	45.9	46.8	45.4	47.8	49.0	Southward .	1	S. & C. 6 .	Max. temp., 54°.6; min., 46°.3.

AUGUST, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Max.	Min.	Direction.	Force.		
		Inches.	°	°	°	°	°	°	°				
3	7 A. M.	28.184	53.8	49.7	45.5	49.3		50.0	50.5	N.E. . . .	6	Rain . . .	Gusty.
	9	.195	54.0	52.8	46.4	52.7		52.7	52.8	Calm . .	0	S. 10 . .	
	Noon.	.152	57.2	60.4	52.2	58.5		60.7	60.3	W. . . .	2	K. & S. 7 .	
	3 P. M.	.129	57.7	58.7	51.5	58.3		59.2	58.8	S.W. . .	2	K. 8 . . .	
	6	.134	56.0	53.2	48.1	52.5		54.0	54.2	S.S.W. . .	1	K. & S. 10 .	
	9	.134	55.8	50.3	47.0	49.7		51.3	51.7	Calm . .	0	K. & S. 10 .	Quantity of rain during day 0.218 in.
	Midn't.	.196	54.8	49.0	46.6	48.4	43.3	49.8	50.6	Calm . . .	0	K. & S. 10 .	Max. temp., 61°.5; min., 46°.7.
4	7 A. M.	.106	53.2	47.0	45.3	46.6		47.7	48.4	Calm . .	0	K. & C. K. 9	
	9	.131	53.2	53.0	48.6	51.3		51.8	52.2	N.W. . .	Air.	K. & C. K. 9	
	Noon.	.110	54.8	61.3	54.9	58.5		59.4	58.6	N.W. . .	Air.	K. & C. K. 7	
	3 P. M.	.064	57.8	63.2	54.5	61.0		62.8	62.3	N.E. . . .	1	K. & C. K. 3	
	6	.113	56.6	54.2	49.1	53.4		55.2	55.2	N.E. . . .	1	K. 2 . . .	
	9	.140	55.5	52.0	48.0	51.1		53.2	53.5	N.E. . . .	1	K. 7 . . .	
	Midn't.	.150	55.0	48.2	45.9	48.1	44.6	49.8	50.0	N.E. . . .	Air.	C. 5 . . .	Max. temp., 65°.1; min., 47°.6.
5	6 A. M.	.148	51.8	44.8	42.6	44.1		45.7	46.6	Calm . .	0	K., C. K. & S. 10	30 minutes late.
	9	.189	52.0	50.6	47.6	49.3		49.3	50.0	Calm . .	0	C. K. & S. 10	
	Noon.	.186	53.8	57.5	50.9	55.4		55.7	55.4	Calm . .	0	S. 10 . . .	
	3 P. M.	.159	54.5	60.1	52.5	58.1		59.6	58.8	Calm . .	0	K. & S. 10 .	
	6	.181	55.0	54.0	50.0	53.4		54.5	54.7	N.E. . . .	1	K. & S. 10 .	
	9	.185	57.3	52.8	49.5	51.8		53.2	53.5	N.E. . . .	1	K. & S. 10 .	
	Midn't.	.174	56.2	50.0	49.1	50.9	41.7	52.2	52.3	Calm . .	0	K. & S. 10 .	Max. temp., 59°.7; min., 45°.3.
6	7 A. M.	.144	54.7	49.0	47.2	48.6		49.7	50.3	Calm . .	0	K. & S. 10 .	
	9	.182	54.7	53.6	50.2	52.2		52.8	53.2	Calm . .	0	K. 7 . . .	
	Noon.	.185	56.0	60.3	53.6	59.0		59.4	59.0	N.W. . .	1	K. 3 . . .	
	3 P. M.	.162	56.7	57.7	52.5	57.6		58.5	58.2	S.W. . .	2	K. 7 . . .	
	6	.175	55.8	53.3	49.1	52.7		54.2	54.3	Southward .	1	K. 9 . . .	
	9	.180	57.8	50.0	47.2	49.1		51.0	51.5	Calm . .	0	K. 9 . . .	
	Midn't.	.164	55.5	46.5	44.6	46.4	44.6	48.0	48.8	N.E. . . .	Air.	K. & C. 6 .	Max. temp., 61°.2; min., 48°.6.
7	7 A. M.	.140	53.3	41.0	39.3	40.5		42.3	43.5	Calm . .	0	K. & C. 6 .	
	9	.151	52.6	48.6	46.4	48.0		48.8	49.2	Calm . .	0	C. 5 . . .	
	Noon.	.157	54.5	56.7	51.3	54.9		55.8	55.5	N.W. . .	Air.	K. & C. 5 .	
	3 P. M.	.151	56.0	58.5	51.1	57.4		58.3	57.8	S.W. . .	2	K. & S. 9 .	
	6	.160	55.5	52.8	47.2	51.8		53.8	54.0	N.E. . .	1	K. 9 . . .	
	9	.173	56.1	50.0	46.4	49.1		51.2	51.7	Calm . .	0	K. 10 . .	
	Midn't.	.172	54.8	47.4	44.4	46.4	39.2	48.3	49.3	N.E. . .	2	K. 9 . . .	Max. temp., 59°.3; min., 43°.3.
8	7 A. M.	.148	51.7	40.9	39.3	40.5		42.2	43.4	Calm . .	0	0	C. and C. S. around horizon.
	9	.170	51.7	48.5	45.9	48.1		48.5	49.0	N.E. . .	Air.	0	C. and C. S. around horizon. Smoky.
	Noon.	.194	54.0	56.8	50.4	55.4		57.7	57.3	Westward .	1	0	Few scattered C. and K.
	3 P. M.	.196	57.0	59.3	52.2	58.3		59.7	59.2	S.W. . .	2	K. & C. 1 .	C. moving from N.W.
	6	.212	56.3	54.2	49.5	53.1		54.4	55.4	S.E. . . .	1	K. & S. 6 .	
	9	.221	56.4	50.5	47.6	49.3		51.4	51.7	N.E. . . .	1	K. 10 . .	
	Midn't.	.252	54.2	49.7	47.2	48.8	39.1	50.0	50.8	Northward .	1	K. 10 . .	Max. temp., 59°.7; min., 43°.2.
9	7 A. M.	.271	53.7	48.0	46.2	47.4		48.5	49.2	Calm . .	0	K. 10 . .	
	9	.315	53.2	49.2	45.9	48.4		49.3	49.5	Calm . .	0	K. 10 . .	
	Noon.	.338	55.2	51.7	47.0	50.0		51.3	51.3	Calm . .	0	K. 10 . .	
	3 P. M.	.317	58.0	55.3	49.1	53.6		56.3	55.7	Calm . .	0	K. & C. 7 .	a Taken after 1 A. M. Heavy clouds over the Andes. Slight rain about 11A. 30m. P. M.
	6	.344	56.2	51.4	47.6	50.4		52.4	52.6	N.E. . . .	1	K. & C. 9 .	
	9	.356	54.7	48.0	45.3	47.2		49.2	49.8	Calm . .	0	K. & C. 10 .	
	a Midn't.	28.340	54.0	46.7	44.8	46.2	44.8	47.8	48.2	Northward .	Airs.	K. & C. 5 .	Max. temp., 58°.6; min., 48°.0.

JULY, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°	°	°				
29	7 A.M.	28.164	52.7	50.8	45.5	51.1		50.4	50.7	S.E. . . .	1	S. 10. . .	Wind shifting.
	9	.138	53.5	54.8	48.0	53.8		54.3	54.2	E. by N. .	1	S. 10. . .	
	Noon.	.154	56.0	53.0	48.4	51.8		52.6	52.6	N.E. . .	2	Rain . . .	
	3 P.M.	.128	56.6	56.8	51.3	55.6		55.7	55.4	E. . . .	Air.	Rain . . .	
	6	.120	58.7	56.5	50.0	56.7		56.3	56.4	N.W. . .	1	S. 10. . .	
	9	.114	58.3	52.2	48.8	51.1		52.2	52.4	Northward .	1	S. 10. . .	Quantity of rain fallen 0.107 *in.*
	Midn't.	.094	57.6	48.8	45.7	47.6	40.7	49.3	49.8	N.E . . .	1	S. 10. . .	Max. temp., 56°.8; min., 45°.7.
30	7 A.M.	.078	53.3	47.2	44.6	46.8		47.0	47.8	Calm . .	0	S. & C. 10 .	
	9	.113	53.3	52.5	48.8	51.3		51.3	51.5	Calm . .	0	S. & C. 10 .	
	Noon.	.143	58.6	64.0	56.5	61.5		61.2	60.4	Calm . .	0	S. . . .	
	3 P.M.	.128	60.3	66.5	57.2	64.4		65.5	64.8	Calm . .	0	S. & C. S. 10	
	6	.140	59.0	55.5	51.5	54.5		56.7	56.8	S.W. . .	2	S. & C. 5 .	
	9	.164	58.5	49.3	46.4	48.6		50.8	51.4	N.E. . .	Air.	0	S. around horizon.
	Midn't.	.134	56.4	48.4	45.5	47.2	40.7	49.0	49.7	Calm . .	0	C. 5 . . .	Max. temp., 65°.5; min., 47°.5.
31	7 A.M.	.062	53.8	45.4	43.5	44.6		45.8	46.7	Calm . .	0	S. & C. S. 10	
	9	.064	53.7	53.5	50.4	52.7		52.3	52.5	Calm . .	0	S. & C. S. 10	
	Noon.	.062	57.5	61.6	55.9	59.7		59.8	59.6	N.E. . .	1	S.,K.&C.S.9	
	3 P.M.	.072	61.4	66.7	59.2	64.6		65.3	65.0	N.E. . .	1	K. S. & C. 10	
	6	.116	59.6	56.5	51.1	55.4		57.8	57.8	Calm . .	0	S. & C. 4 .	
	9	.098	59.8	51.7	48.6	50.6		53.0	53.3	N.E. . .	Air.	C. 4 . . .	[45°.8.
	Midn't.	28.099	58.0	47.5	44.6	46.4	42.5	48.6	49.5	N.E. . .	Air.	0	An hour late. Max. temp., 65°.3; min.,

AUGUST, 1851.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°	°	°				
1	7 A.M.	28.092	54.5	45.6	43.9	45.0		45.7	46.8	Calm . .	0	C. 7 . . .	
	9	.091	54.1	52.0	49.5	51.3		51.3	51.6	Calm . .	0	C. 4 . . .	Smoky.
	Noon.	.097	56.4	61.7	54.7	60.1		59.7	59.7	Calm . .	0	K. & C. 9 .	
	3 P.M.	.088	58.2	62.0	56.5	60.3		61.7	61.5	Calm . .	0	K. & C. 10 .	
	6	.059	57.0	56.1	52.7	55.4		56.3	56.3	N.E. . .	2	K. 9. . .	
	9	.104	58.5	49.3	47.4	48.4		50.2	50.5	E. . . .	3	K. & S. 10 .	Fog rising (?)
	Midn't.	.060	56.8	49.8	47.6	48.8	49.2	49.8	50.3	N.E. . .	3	K. & S. 7 .	Max. temp., 61°.8; min., 46°.7.
2	7 A.M.	.014	55.0	47.7	46.4	46.8		48.0	48.4	Calm . .	0	K. & C. 7 .	
	9	.043	54.8	52.0	50.0	51.3		51.8	52.2	S.W. . .	3	S. & K. S. 10	
	Noon.	28.012	55.7	54.1	51.1	53.1		54.0	54.0	S.W. . .	3	S. 10. . .	
	3 P.M.	27.995	56.2	51.7	49.1	51.1		51.7	52.0	S.W. . .	3	S. 10. . .	
	6	28.012	56.4	50.5	48.4	49.7		50.7	51.3	N.E. . .	2	Mist 10 . .	
	9	28.002	55.4	49.5	47.6	48.6		49.8	50.3	E. . . .	1	S. & K. S. 10	
	Midn't.	27.997	54.5	47.4	45.9	46.8	45.4	47.8	49.0	Southward .	1	S. & C. 6 .	Max. temp., 54°.6; min., 48°.3.

JULY, 1851—Continued.

DATE.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register.			Direction.	Force.		
							Sky.	Max.	Min.				
		Inches.	°	°	°	°	°	°	°				
22	7 A. M.	28.138	53.6	46.7	45.5	46.4		47.0	47.6	S. eastward	Air.	S. & K. S. 10	
	9	.173	53.8	51.0	48.0	49.3		49.8	50.3	N.W. . .	Air.	S. 10 . . .	
	Noon.	.155	55.7	56.2	50.2	53.8		55.3	55.2	S.S.E. . .	1	S. 10 . . .	
	3 P. M.	.126	57.7	54.8	50.4	53.6		55.2	55.2	W.S.W. .	3	S. 10 . . .	Late.
	6	.127	59.5	50.5	48.4	49.7		50.9	51.7	Calm . .	0	S. 10 . . .	
	9	.134	58.8	49.5	47.6	48.6		49.6	50.4	N.E. . . .	1	S. 10 . . .	Few drops of rain about 9h. 30m.
	Midn't.	.109	55.3	47.4	45.9	46.8	44.6	47.7	47.4	N. eastward	Air.	0	S. & K. to northward. Max. temp., 57°.2; min., 47°.4.
23	7 A. M.	28.010	53.6	44.0	42.6	43.7		44.7	45.6	Calm . .	0	S. 10 . . .	
	9	27.992	53.0	48.5	46.4	47.4		47.8	48.4	Calm . .	0	S. 10 . . .	
	Noon.	.998	55.7	53.0	48.8	51.1		52.2	52.3	N.W. . .	Air.	S. 10 . . .	
	3 P. M.	.966	58.0	52.3	49.5	51.3		52.0	52.2	Northward .	Air.	S. 10 . . .	
	6	.904	56.1	53.0	48.0	52.2		53.2	53.5	N.E. . . .	3	S. 10 . . .	Few drops of rain during the evening.
	9	.896	58.6	57.5	48.0	57.2		57.6	57.3	N.W. . .	4	S. 10 . . .	
	Midn't.	.871	57.4	56.0	47.4	55.9	42.3	56.3	56.4	N.N.E. . .	1	S. 10 . . .	Max. temp., 59°.2; min., 45°.3.
24	7 A. M.	.817	55.2	55.5	46.2	54.5		55.3	54.8	N.W. . .	5 & 6	Rain . . .	Slight.
	9	.880	55.5	54.2	47.6	53.6		54.6	54.4	N.W. . .	5 & 6	S. & K. S. 10	Gusty.
	Noon.	.931	57.0	50.5	47.4	49.3		50.5	50.8	S.W. . .	1	Rain . . .	Clouds from north-northeast.
	3 P. M.	.937	57.5	51.6	47.6	50.6		51.3	51.5	N.E. . . .	2	Rain . . .	Quantity of rain during day, together with very slight quantity yesterday and the day before, 5.258 in.
	6	27.980	58.8	48.8	46.6	48.0		48.8	50.0	W. . . .	2	Rain . . .	
	9	28.005	60.9	49.3	46.4	48.6		49.3	50.2	N.E. . . .	3	Rain . . .	
	Midn't.	28.005	57.7	47.3	44.6	46.6	44.0	47.4	48.2	N.E. . . .	2	Rain . . .	Late. Max. temp., 58°.2; min., 47°.7.
25	7 A. M.	27.990	53.7	45.8	43.7	45.0		45.8	46.5	N.W. . .	1	Rain . . .	
	9	28.007	53.3	47.2	45.0	46.4		46.7	47.5	Calm . .	0	Rain . . .	
	Noon.	28.007	57.4	48.7	46.4	47.6		48.2	48.6	Calm . .	0	Rain . . .	
	3 P. M.	27.968	61.0	49.0	46.4	48.0		48.3	48.7	Calm . .	0	Rain . . .	
	6	28.074	59.0	46.5	45.0	45.9		46.7	47.4	N.E. . . .	1	Rain . . .	Slight.
	9	.134	60.0	45.8	43.9	44.8		45.7	46.8	N.E. . . .	1	Rain . . .	Quantity of rain for day, 3.520 in.
	Midn't.	.104	60.3	44.0	42.3	43.2	41.7	44.0	45.0	N.W. . .	1	S. 10 . . .	Max. temp., 58°.2; min., 44°.5.
26	7 A. M.	.060	54.7	43.7	42.3	43.7		43.7	44.7	Calm . .	0	S. & K. S. 10	
	9	.075	53.6	46.5	44.8	45.9		45.4	46.3	Calm . .	0	S. & K. S. 10	
	Noon.	.085	53.3	50.6	45.9	48.8		49.6	49.8	Calm . .	0	S. & K. S. 10	
	3 P. M.	.104	58.3	49.2	46.2	48.1		48.7	49.3	Calm . .	0	Rain . . .	Slight.
	6	.104	57.6	46.8	45.0	45.9		46.8	47.7	N.E. . . .	Air.	S. & K. S. 10	Rain fallen during the day not sufficient to measure.
	9	.126	57.2	46.3	44.8	45.7		46.3	47.5	Calm . .	0	S. & K. S. 10	
	Midn't.	.139	57.1	44.5	43.2	43.9	41.4	44.5	45.8	N.W. . .	1	S. 10 . . .	Max. temp., 49°.7.; min., 44°.2.
27	7 A. M.	.179	53.8	43.2	41.9	42.6		43.3	44.3	Calm . .	0	S. & K. S. 9	Rain during night.
	9	.228	54.5	45.8	43.7	45.0		45.2	45.7	N.E. . . .	Air.	Rain . . .	Clouds breaking to westward.
	Noon.	.218	57.3	51.4	45.9	49.3		50.3	50.6	Calm . .	0	S. & K. S. 10	
	3 P. M.	.238	57.7	48.8	44.4	47.6		48.4	48.8	N.N.W. .	2	S. & K. S. 10	
	6	.274	56.0	44.5	41.9	43.9		44.5	45.6	N.E. . . .	1	Rain . . .	Quantity of rain during the last forty-eight hours, 1.088 in.
	9	.295	56.0	44.5	41.0	43.9		44.0	45.5	N.W. . .	5 & 6	Rain . . .	
	Midn't.	.318	53.3	42.8	41.0	42.1	39.7	42.6	43.8	N.W. . .	Air.	Rain . . .	Max. temp., 50°.7; min., 43°.0.
28	7 A. M.	.258	52.0	39.5	37.8	38.4		39.2	41.0	N.W. . .	1	Fog 10 . .	Much snow on the mountains.
	9	.276	52.3	40.6	39.1	39.8		40.0	41.7	N.W. . .	1	S. 10 . .	
	Noon.	.273	54.3	43.5	41.2	42.8		42.7	43.8	N.W. . .	1	S. 10 . .	
	3 P. M.	.192	57.0	44.5	42.3	43.5		43.8	44.8	Calm . .	0	S. 10 . .	
	6	.216	55.6	42.3	40.8	42.1		42.0	43.4	Southward .	1	S. 10 . .	
	9	.214	54.7	43.0	40.3	42.3		42.5	43.7	N.E. . . .	2	S. 10 . .	Quantity of rain during the day, 0.236 in.
	Midn't.	28.148	53.1	45.1	41.5	45.0	36.9	44.8	45.8	N.W. . .	1	S. 10 . .	Max. temp., 50°.2; min., 40°.6.

AUGUST, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register.			Direction.	Force.		
							Sky.	Max.	Min.				
		Inches.	°	°	°	°	°	°	°				
10	7 A. M.												
	9	28.337	51.8	51.7	48.1	50.4		52.1	51.8	W.S.W. .	2	0	Few C. and K. around horizon.
	Noon.	.291	54.5	57.8	52.2	56.3		59.5	58.6	W.S.W. .	2	0	Do. ● do.
	3 P. M.	.234	57.0	61.0	52.9	59.7		61.2	60.5	Calm . .	0	0	Do. ● do.
	6	.234	56.9	56.0	51.3	54.5		57.7	57.7	Calm . .	0	0	Do. do.
	9	.214	54.7	49.8	47.0	48.8		51.4	51.7	Calm . .	0	C. & C. K. 2	
	Midn't.	.175	52.7	46.5	44.1	45.7	39.7	48.0	48.7	Eastward .	1	K.,C.K.&S.9	Max. temp., 62°.2; min., 43°.4.
11	7 A. M.	.058	51.4	44.0	41.5	43.2		44.5	45.3	N.E. . .	1	S. 10 . . .	
	9	.089	52.2	54.2	49.1	51.8		53.6	53.6	Calm . .	0	S. 10 . . .	
	Noon.	.054	54.6	63.5	55.2	61.2		62.8	62.3	Calm . .	0	S. & C. S. 10	
	3 P. M.	.040	59.2	67.0	56.7	65.1		66.8	66.3	Calm . .	0	C.K. & C. S. 6	
	6	.044	59.2	59.2	52.5	57.2		60.7	60.4	N.E. . . .	Air.	C. & S. 6 .	
	9	.044	56.7	53.3	48.6	51.8		54.6	54.8	N.E. . . .	1	C. & S. 8 .	Halo around the moon.
	Midn't.	.044	55.0	49.7	46.4	49.1	40.5	51.0	51.6	N.E. . . .	Air.	C. & C. S. 6	Max. temp., 62°.3; min., 44°.6.
12	7 A. M.	.075	53.2	45.4	42.1	44.8		46.2	46.6	S.E. . . .	1	C. & C. S. 5	
	9	.108	52.7	54.0	49.3	53.8		53.7	53.8	N.E. . . .	3	C. 7 . . .	
	Noon.	.122	57.7	66.2	56.9	65.1		64.8	64.3	S. eastward	Air.	C. & C. S. 8	
	3 P. M.	.121	59.7	65.8	57.6	64.6		66.2	65.6	S.W. . .	1	C. & C. S. 9	
	6	.158	58.2	54.4	51.3	53.6		56.8	56.7	Southward .	Air.	C. & C. S. 6	
	9	.156	56.6	50.8	47.6	50.0		52.4	52.8	N.E. . . .	1	C. & C. S. 1	
	Midn't.	.125	55.0	48.4	46.4	47.6	41.5	49.6	50.4	N.E. . . .	1	0	Max. temp., 66°.4; min., 46°.3.
13	7 A. M.	.125	52.4	47.8	46.6	47.2		48.2	48.6	S.E. . . .	Air.	Fog 10 . .	Earthquake at 5h. 46m. 30s. P. M.
	9	.135	52.7	49.3	47.2	48.4		49.3	49.7	S.W. . .	1	Fog 10 . .	Fog lifting.
	Noon.	.141	53.8	51.0	48.0	49.7		50.7	50.8	N.E. . . .	1	K. S. 10 .	
	3 P. M.	.122	58.7	50.5	47.6	49.5		50.6	51.0	S.W. . .	1	K. S. 10 .	
	6	.120	56.6	48.4	46.8	47.6		48.8	49.4	N.E. . . .	1	Mist 10 . .	
	9	.133	57.3	48.0	46.4	47.2		48.3	48.8	E. . . .	1	S. & K. S. 10	
	Midn't.	.143	55.5	47.5	45.7	47.0	42.0	47.8	48.7	N.E. . . .	1	K. & K. S. 10	Max. temp., 52°.4; min., 46°.0.
14	7 A. M.	.143	53.0	46.2	44.8	45.9		46.4	47.3	Calm . .	0	Rain . . .	Slight.
	9	.182	53.5	48.5	46.6	47.6		48.2	48.7	Calm . .	0	Rain . . .	Do.
	Noon.	.244	56.6	49.2	47.4	48.1		48.8	49.5	S.W. . .	1	Rain . . .	Hard.
	3 P. M.	.309	59.4	47.0	45.0	46.2		47.0	47.5	N.E. . . .	1	Rain . . .	Do.
	6	.340	58.7	46.8	43.0	46.8		46.6	47.6	S.W. . .	2 & 5	S. 10 . . .	Quantity of rain fallen during the day
	9	.347	57.9	44.1	42.1	43.7		44.6	45.7	Calm . .	0	K. & S. 2 .	To the eastward. [2.090 in.
	Midn't.	.342	59.0	39.4	38.0	39.0	37.6	40.6	42.5	Westward .	Air.	C. & S. 1 .	To the eastward. Max. temp., 50°.2; min., 42°.0.
15	7 A. M.	.284	52.1	37.2	36.3	37.0		37.3	39.2	Calm . .	0	0	Frost.
	9	.274	50.0	44.9	42.6	44.6		43.8	44.8	Calm . .	0	0	S. and C. S. to westward.
	Noon.	.242	52.7	53.3	48.0	52.7		52.7	52.5	S.W. . .	1	C. & C. S. 10	
	3 P. M.	.242	56.4	54.2	47.0	52.9		53.8	53.7	S.W. . .	Air.	S. & K. S. 10	
	6	.224	56.4	49.5	46.2	49.1		50.4	50.7	N.E. . . .	1	S. & K. S. 10	
	9	.219	57.0	47.9	45.3	47.4		48.3	49.2	Northward .	Air.	S. & K. S. 10	
	Midn't.	.179	54.8	46.3	44.1	45.7	34.0	46.7	47.6	N.W. . .	Air.	S. & K. S. 10	Taken at 1 o'clock. Max. temp., 55°.2; min., 38°.6.
16	6 A. M.	.225	52.0	44.4	42.6	43.9		44.8	45.8	Calm . .	0	K.S.&C.K.9	45 minutes late.
	9	.274	52.7	50.0	46.6	48.4		48.7	49.2	Calm . .	0	S.,K.S.&C.K.8	
	Noon.	.284	54.0	56.6	50.2	54.3		56.8	56.3	Calm . .	0	C.,C.S.& K. 4	
	3 P. M.	.263	56.7	59.4	50.4	57.6		59.6	58.7	Calm . .	0	0	Few K. and S. around the horizon.
	6	.308	56.4	54.3	48.0	53.8		55.0	55.0	S.S.W'd .	2 & 3	S. 10 . .	
	9	.316	55.8	51.3	47.6	50.4		52.2	52.5	N.E. . . .	1	S. 10 . .	
	Midn't.	28.297	54.7	41.8	46.4	48.0	41.8	49.8	50.6	Northward .	Airs.	S. 10 . .	Max. temp., 59°.8; min., 45°.6.

AUGUST, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Max.	Min.	Direction.	Force.		
		Inches.	°	°	°	°	°	°	°				
17	6 A. M.	28.270	53.3	47.0	45.0	46.6		47.3	48.2	Northward .	1	K.S.&C.K. 10	
	9	.279	54.2	53.7	49.1	52.2		52.7	52.7	W. . . .	2	K. & C. K. 8	
	Noon.	.290	55.4	59.0	52.2	57.6		58.2	58.0	S.W. . .	Air.	K. S. & C. K. 9	
	3 P. M.	.275	57.8	63.2	54.9	61.5		62.6	62.2	S.W. . .	Air.	C. S. 2 . .	
	6	.254	58.4	57.5	52.2	56.3		59.0	58.8	Southward .	Air.	S. & C. S. 5	
	9	.309	55.6	52.5	49.1	51.5		53.7	53.8	N.E. . . .	Air.	0	S. and C. around horizon.
	Midn't.	.311	54.5	48.5	45.7	47.4	43.8	49.8	50.4	N.E. . . .	1	0	Taken at 1 o'clock. Max. temp., 64°.2; min., 47°.3.
18	7 A. M.	.305	50.0	43.1	41.0	43.0		43.7	44.6	Calm . .	0	S., C. S. & C. 8	
	9	.321	51.4	52.2	48.1	51.8		51.4	51.7	Calm . .	0	S., C. K. & C. 8	
	Noon.	.344	56.0	61.4	54.0	60.1		61.4	60.6	Westward .	1	C. & C. S. 1	
	3 P. M.	.297	58.8	66.0	56.3	64.4		65.7	64.8	S.W. . .	1	C. & C. S. 4	C. very light.
	6	.316	59.0	58.5	51.8	57.6		60.0	59.8	Calm . .	0	C. & C. S. 1	
	9	.330	56.8	52.3	48.4	51.3		53.6	54.2	N.E. . . .	1	C. & C. S. 1	
	Midn't.	.303	55.1	48.5	45.7	48.1	39.2	49.7	50.6	N.E. . .	1	C. & C. S. 1	Max. temp., 65°.6; min., 43°.5.
19	6 A. M.	.234	52.4	45.0	43.0	45.0		45.7	46.7	Calm . .	0	C. & C. S. 3	
	9	.241	53.2	53.5	49.5	53.4		53.0	53.0	W. . . .	1	K., C. K. & C. 4	
	Noon.	.215	56.8	64.0	54.9	62.8		63.4	62.6	Calm . .	0	C. & C. S. 5	
	3 P. M.	.156	60.7	69.0	56.9	66.8		68.6	67.6	Calm . .	0	C. & C. S. 6	
	6	.156	61.8	62.5	54.9	61.0		63.8	68.5	Calm . .	0	C. & C. S. 8	
	9	.156	57.9	54.0	49.5	54.0		55.6	55.8	N.E. . . .	2	0	
	Midn't.	.132	56.0	50.8	47.4	50.9	40.2	52.4	52.7	E. . . .	1	0	Max. temp., 69°.3; min., 44°.8.
20*	8 A. M.	.114	53.5	52.3	47.2	51.5		51.7	51.8	N.W. . .	Air.	0	C. to southward.
	9	.114	55.0	57.0	51.5	56.9		56.6	56.3	Calm . .	0	0	Do.
	Noon.	.132	62.3	70.3	57.2	69.5		67.2	66.6	Calm . .	0	C. & C. S. 8	
	3 P. M.	.127	65.8	74.3	59.7	73.2		72.8	72.0	Calm . .	0	C. & C. S. 7	
	6	.153	65.3	67.6	58.3	67.3		67.8	67.6	S.S.W. . .	1	C. & C. S. 3	
	9	.173	62.5	59.7	54.5	59.2		61.0	61.2	N.E. . . .	1	0	
	Midn't.	.189	59.0	55.5	51.3	55.2	42.7	56.5	56.6	N.E. . . .	1	0	Max. temp., 73°.4; min., 47°.8.
21†	7 A. M.	.198	55.0	50.4	46.4	50.0		51.0	51.3	Calm . .	0	C. & C. S. 1	
	9	.218	56.6	57.8	53.8	57.4		57.7	57.4	N.W. . .	1	C. & C. S. 5	
	Noon.	.232	62.3	68.7	59.4	67.5		68.8	67.8	W.N.W. .	1	C. & C. S. 4	
	3 P. M.	.250	65.5	73.0	60.1	71.0		71.8	71.0	W. . . .	2	C. & C. S. 10	
	6	.258	64.5	65.2	56.7	63.7		66.3	66.0	S.W. . .	Air.	C., C. S. & K. S. 9	
	9	.272	62.0	57.8	53.1	57.2		59.5	59.6	N.E. . .	1	C. S. 4 . .	
	Midn't.	.267	61.5	53.0	49.5	52.2	44.5	55.2	55.5	N.E. . .	1	0	Max. temp., 71°.7; min., 49°.7.
22‡	7 A. M.	.223	55.6	48.0	44.8	47.0		49.3	49.7	N.E. . . .	Air.	0	C. to southward.
	9	.242	56.9	56.2	52.0	55.9		56.2	55.8	N.E. . . .	Air.	0	C. to southward. Smoky.
	Noon.	.204	62.1	67.5	59.2	66.4		67.8	67.0	W.N.W. .	1	0	
	3 P. M.	.165	65.6	71.4	59.2	70.0		71.8	70.6	Westward .	1	0	C. S. to southward.
	6	.162	64.5	63.8	55.9	62.6		65.5	65.0	Eastward .	Air.	0	Do.
	9	.145	62.0	56.3	51.8	54.9		58.7	58.5	Calm . .	0	0	
	Midn't.	28.103	59.6	52.6	48.4	52.0	43.5	54.6	54.7	N.E. . . .	1	0	Max. temp., 72°.2; min., 48°.6.

* 7 P. M., zodiacal light very bright, the pyramid about eight degrees wide at base, embracing α Virginis nearly in the centre, and the apex extending almost to Jupiter. J. M. G.

† Zodiacal light again visible from 6*h.* 30*m.* P. M. to 7*h.* 45*m.*, but indistinct, the light diffused, and in a great measure hidden from view by the clouds; position apparently about the same as last night. E. R. S.

‡ Zodiacal light about 7 P. M. dim, diffused, and with no distinguishable form.

AUGUST, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Max.	Min.	Direction.	Force.		
		Inches.	°	°	°	°	°	°	°				
23	7 A. M.	28.036	54.7	46.7	43.0	45.7		48.0	48.5	Eastward .	Air.	0	Zodiacal light 15° broad at base, with
	9	.056	56.5	57.7	53.6	58.1		57.0	56.7	N.W. . .	1	0	α Virginis near the centre, and the
	Noon.	.051	63.7	72.0	60.8	71.0		70.5	69.3	S.W. . .	1	0	pyramid extending up to Jupiter. It
	3 P. M.	.050	67.7	75.3	65.1	73.6		74.7	73.7	W. . . .	1	0	was brighter than on the two pre-
	6	.066	64.3	60.8	55.9	60.1		63.2	62.8	Southward .	2	0	vious nights.
	9	.105	59.3	54.7	52.5	54.5		56.3	56.4	S.S.W. . .	3	0	
	Midn't.	.150	59.5	53.4	51.3	52.5	41.5	54.6	54.7	S.S.W. . .	3	S. 10 . . .	Max. temp., 74°.6; min., 46°.8.
24	7 A. M.	.214	60.6	52.6	50.4	51.3		53.5	53.5	S.W. . .	1	Fog. 10 . .	
	9	.244	59.2	52.8	50.9	52.0		53.2	53.2	S.S.W. . .	2	Fog & N. 10	
	Noon.	.243	60.4	63.8	57.4	61.5		61.5	61.0	S.W. . .	1	K. 10 . .	
	3 P. M.	.217	62.2	60.7	54.3	59.7		60.8	60.6	S.W. . .	2	K. 10 . .	
	6	.224	60.6	53.7	50.2	53.1		55.0	55.2	S.S.E. . .	2	K. 10 . .	
	9	.224	58.5	52.9	49.3	52.0		54.0	54.0	S. . . .	2	K. & S. 10 .	
	Midn't.	.220	57.8	52.4	49.3	52.0	48.9	53.6	53.3	S. . . .	Airs.	K. & S. 10 .	Max. temp., 65°.6; min., 52°.5.
25	7 A. M.	.236	56.3	51.0	48.8	50.0		51.7	51.8	S.S.E. . .	1	K. & S. 10 .	Fog around mountains.
	9	.245	46.5	52.9	49.5	51.1		53.0	53.1	Calm . .	0	K. & S. 10 .	
	Noon.	.241	58.0	63.7	53.6	61.0		62.5	61.7	Calm . .	0	K. 10 . .	
	3 P. M.	.225	59.4	59.5	52.0	58.0		59.8	59.7	S.W. . .	2	K. 10 . .	
	6	.254	57.6	50.5	46.6	50.2		52.3	52.6	S.W. . .	2	K., S.& C. 8	
	9	.266	59.4	47.6	44.4	47.0		48.7	49.7	N.W. . .	3	0	Clouds around horizon.
	Midn't.	.257	56.2	44.2	41.5	43.3	40.7	44.7	46.2	N.W. . .	3	S. 3 . . .	Max. temp, 64°.1; min., 45°.7.
26	7 A. M.	.253	55.7	41.3	39.1	41.0		41.7	43.0	Calm . .	0	0	Smoky.
	9	.256	54.2	48.3	44.0	47.6		48.1	48.4	N.E. . . .	1	0	Do.
	Noon.	.234	56.2	57.0	50.0	54.7		57.2	56.5	Calm . .	0	0	
	3 P. M.	.208	58.7	60.7	52.0	59.7		62.0	61.2	W. . . .	2	0	
	6	.232	57.8	52.8	44.8	51.8		55.0	54.8	N.E. . . .	1	0	Zodiacal light bright until after 8 P. M.
	9	.250	56.5	48.0	43.0	47.2		49.3	50.3	N.E. . . .	1	0	Its position was more to the south'd.
	Midn't.	.254	57.8	43.5	39.8	43.0	37.0	45.6	46.7	S.W. . .	1	0	Max. temp., 69°.2; min., 41°.8.
27	7 A. M.	.279	56.4	40.5	38.0	40.3		41.2	42.6	Southward .	Air.	S., K. S.& C. 9	Zodiacal light visible.
	9	.324	53.5	49.8	44.8	49.1		49.7	50.2	S.W. . .	1	K., S. & C. 6	
	Noon.	.337	56.1	59.0	50.9	57.9		58.2	57.7	Calm . .	0	0	Smoky.
	3 P. M.	.337	58.8	61.7	52.0	60.6		62.0	61.4	Calm . .	0	C. & C. S. 4	
	6	.368	58.8	55.0	49.7	54.9		57.2	57.2	Calm . .	0	0	C. around horizon.
	9	.380	56.4	50.5	46.6	49.1		52.3	52.7	N.E. . . .	Air.	0	
	Midn't.	.354	55.0	47.2	44.6	46.6	35.5	48.2	49.3	N.W. . .	1	0	Max. temp., 69°.7; min., 40°.6.
28	7 A. M.	.322	53.0	43.8	42.6	44.1		44.5	45.4	Calm . .	0	C. & C. S. 1	
	9	.342	54.2	52.5	48.1	51.8		52.2	52.2	S.E. . .	1	0	C. to northward and westward.
	Noon.	.334	58.7	62.4	53.8	61.5		62.0	61.3	Calm . .	0	0	
	3 P. M.	.277	62.7	67.4	57.6	65.7		66.7	65.8	N.W. . .	1	0	
	6	.243	62.2	60.7	54.7	60.1		62.0	62.0	S.W. . .	1	0	At 7h. 40m. P. M., a slight earthquake
	9	.245	60.2	54.5	50.4	53.0		56.6	56.7	N.E. . . .	1	0	shock. S. L. P.
	Midn't.	.222	58.2	52.5	49.5	51.5	40.6	53.7	54.0	Northward .	Air.	0	Max. temp., 66°.7; min., 44°.7.
29	7 A. M.	.202	54.7	46.6	44.4	46.2		47.3	48.2	Calm . .	0	C. & C. S. 3	At about 1h. 30m. A. M. and 6h. A. M.,
	9	.212	56.2	57.5	52.9	56.5		56.8	56.8	N.E. . . .	1	C. & C. S. 5	Late. [earthquake shocks, the latter
	Noon.	.212	59.4	62.0	56.1	61.5		63.6	63.2	W.S.W. .	3	C.,C.S.&K. 10	[from 10s. to 15s. in duration.
	3 P. M.	.181	60.3	64.8	52.9	63.3		65.0	64.5	W.S.W. .	3	S. & K. S. 10	S. L. P.
	6	.209	59.6	55.1	51.3	54.5		56.2	56.3	W.S.W. . .	3 & 4	S.K.S.&C.S.10	
	9	.247	57.4	51.9	48.4	51.1		53.0	53.2	Eastward .	1	S. & K. S. 10	Late.
	Midn't.	28.247	56.8	49.5	47.2	48.8	42.2	50.6	51.2	N.W. . .	2	S. & K. S. 10	Max. temp., 66°.7; min., 47°.0.

AUGUST, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register.			Direction.	Force.		
							Sky.	Max.	Min.				
		Inches.	°	°	°	°	°	°	°				
30	7 A. M.	28.322	57.0	47.5	46.4	47.2		48.0	48.6	S.W. . .	2	Fog 10 . .	
	9	.327	54.5	49.5	46.6	48.4		50.0	50.4	S.W. . .	1	S. & K. S. 10	
	Noon.	.342	57.6	52.1	47.4	50.6		52.0	52.1	S.W. . .	1	S.K.S.&C.S 10	
	3 P. M.	.326	60.8	52.0	47.4	50.4		52.4	52.5	S.E. . . .	1	S. & N. 10 .	Very slight mist falling.
	6	.319	58.0	51.0	47.2	50.2		51.5	51.7	N.E. . . .	Air.	K. & S. 9 .	
	9	.334	56.8	48.2	45.3	47.6		48.7	49.6	S.W. . .	2	K. & S. 10 .	
	Midn't.	.298	55.0	46.2	43.7	46.4	43.2	46.6	47.4	N.W. . .	1	K. & S. 4 .	Max. temp., 58°.3; min., 43°.5.
31	7 A. M.	.208	50.7	40.0	38.9	40.0		41.2	42.7	N.W. . .	1	C. & C. S. 3	
	9	.217	52.3	50.5	47.6	50.9		49.8	50.2	W. . . .	1	K., S. & C. S	
	Noon.	.197	55.5	56.8	50.6	55.9		56.7	56.5	W. . . .	1	S. & K. S. 10	
	3 P. M.	.141	59.0	62.7	54.7	60.8		62.7	62.0	S.W. . .	1	S., C. S. & C S	
	6	.131	59.7	57.9	52.2	57.4		59.0	58.6	S.S.E. . .	1	C. & C. S. 4	
	9	.190	56.7	50.8	48.0	49.7		52.6	52.8	Eastward .	Air.	C. & C. S. 3	
	Midn't.	28.064	54.8	45.5	43.0	44.1	37.2	47.2	48.0	N.E. . . .	Air.	0	Taken at 1 o'clock. Max. temp., 68°.3; min., 41°.6.

SEPTEMBER, 1851.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register.			Direction.	Force.		
							Sky.	Max.	Min.				
		Inches.	°	°	°	°	°	°	°				
1	6 A. M.	28.072	52.0	43.0	41.7	42.8		44.3	45.2	Calm . .	0	0	C. and S. to southward.
	9	.110	53.2	53.0	49.5	52.7		56.6	52.7	Westward .	1	0	
	Noon.	.107	59.6	66.0	56.7	65.5		65.5	64.6	Westward .	Air.	0	Smoky.
	3 P. M.	.109	64.6	72.3	58.5	70.5		71.7	70.6	W. . . .	1	0	C. around horizon.
	6	.134	62.6	61.0	59.5	59.9		63.0	62.7	S.E. . . .	1	0	Do. do.
	9	.121	59.5	54.8	49.7	53.6		56.8	56.8	Calm . .	0	C. & C. S. 4	
	Midn't.	.102	56.2	50.0	46.4	49.3	40.0	51.8	52.2	N.E. . . .	1	S. & C. S. 4	Max. temp., 71°.6; min., 44°.7.
2	6 A. M.	.090	54.3	46.5	44.1	46.4		48.0	48.5	Calm . .	0	C. & C. K. 8	
	9	.124	54.5	54.0	49.7	54.0		53.8	53.7	N.E. . . .	Air.	C. & S. 5 .	
	Noon.	.129	57.7	61.8	53.4	60.8		62.2	61.3	Westward .	Air.	C. 5 . . .	
	3 P. M.	.112	60.6	65.6	56.9	64.6		66.1	65.2	S.W. . .	2	C. & C. S. 8	
	6	.122	60.1	57.0	52.2	56.5		58.8	58.7	Southward .	1	C. & C. S. 8	
	9	.162	54.9	50.0	47.6	49.5		51.2	51.6	S. westward	3	S. & K. S. 10	
	Midn't.	.191	55.7	49.9	47.4	49.3	42.7	50.7	51.0	N.E. . . .	3	S. & K. S. 10	Max. temp., 66°.0; min., 48°.3.
3	7 A. M.	.164	55.2	47.5	45.7	47.0		48.8	48.7	S.E. . . .	1	S. 1 . . .	Heavy bank of K. S. at the base of Andes.
	9	.192	55.4	52.5	48.6	52.0		53.2	53.2	N.W. . .	1	K. 3 . . .	
	Noon.	.216	56.7	59.3	52.0	58.7		60.4	60.0	S.W. . .	Air.	S. & C. S. 8	An earthquake shock at 7h. 45m. A. M.
	3 P. M.	.214	59.2	63.0	53.4	62.2		64.0	63.2	N.W. . .	3	C.,S. & K. 10	S. L. P.
	6	.240	58.3	53.6	50.4	53.1		55.3	55.4	Southward .	1	C. K. & C. S 9	
	9	.272	60.2	51.7	49.1	51.1		52.8	53.2	S. westward	1	K. & K. S. 10	
	Midn't.	28.246	59.2	51.0	48.4	50.2	45.2	51.8	52.4	N.W. . .	3	K. & K. S. 10	Max. temp., 64°.0; min., 48°.7.

SEPTEMBER, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register.			Direction.	Force.		
							Sky.	Max.	Min.				
		Inches.	°	°	°	°	°	°	°				
4	7 A. M.	28.245	56.8	49.7	47.4	48.8		50.5	50.8	Calm . .	0	K. & K. S. 10	
	9	.262	56.4	54.7	49.3	52.5		53.7	53.6	S.W. . .	1	S. & K. S. 10	
	Noon.	.261	57.8	54.5	49.3	54.0		54.2	54.0	Westward .	Air.	S. & K. S. 10	
	3 P. M.	.250	60.0	57.4	51.3	55.6		57.7	57.4	S.W. . .	2	K. & K. S. 7	
	6	.267	58.9	53.1	48.6	52.7		55.0	55.0	S.W. . .	Air.	K. S. & C. 1	Around horizon.
	9	.272	58.5	49.0	46.2	48.1		50.3	51.0	S.E. . . .	1	K. & C. S. 4	
	Midn't	.256	55.8	46.0	43.2	45.0	42.4	46.7	48.0	N.W. . .	1	0	S. around horizon. Max. temp., 59°.5; min., 47°.4.
5	7 A. M.	.250	55.8	45.4	43.5	44.8		45.6	46.5	S. westward	Air.	S. & K. S. 10	
	9	.248	53.6	48.5	45.3	47.2		48.3	48.7	Southward .	1	S. & K. S. 10	
	Noon.	.244	57.0	56.2	49.3	53.8		56.3	55.7	S.W. . .	1	K. 9 . . .	
	3 P. M.	.225	59.4	59.0	52.0	57.9		59.8	59.0	S.S.W. . .	1	S. C. & K. 3	
	6	.222	58.9	53.7	48.0	52.9		55.2	55.0	S.E. . . .	1	C. & S. 4 .	
	9	.214	55.4	46.3	43.3	46.0		48.4	49.2	N.E. . . .	1	C. K. & S. 1	
	Midn't.	.172	54.4	42.9	40.8	42.3	39.5	44.8	45.8	N.E. . . .	Air.	C. & C. S. 7	Lunar halo. Max. temp., 60°.2; min., 44°.5.
*6	6 A. M.	.104	50.7	40.9	39.3	40.8		42.0	43.3	N. westward	Air.	K., C. K. & C. 7	Late.
	9	.110	51.6	47.2	44.4	47.2		47.3	47.8	W. . . .	1	C. K. & K. 3	
	Noon.	.096	55.3	63.0	53.8	62.0		62.8	62.3	W. . . .	1	K. & C. K. 1	
	3 P. M.	.092	59.0	70.0	56.7	67.7		68.4	68.0	Eastward .	Air.	K. & K. S. 8	Rainbow at 5h. 15m.
	6	.124	59.9	62.6	54.0	61.3		63.7	63.3	Southward .	Air.	K. S. & N. 10	Rain over mountains to eastward.
	9	.162	59.7	60.0	53.1	59.7		61.0	60.7	Calm . .	0	K., K. S. & N. 8	Slight rain.
	Midn't.	.162	59.2	58.8	53.4	57.6	37.7	59.6	59.5	Calm . .	0	K., S. & N. 8	Rain. Max. temp., 68°.8; min., 42°.3.
†7	6 A. M.	.126	58.4	56.0	51.3	55.2		56.7	56.4	N.W. . .	1	S., K. S. & N. 9	Rain over mountains.
	9	.160	58.5	59.6	54.5	58.5		59.4	59.0	Calm . .	0	S. & K. S. 10	
	Noon.	.160	61.6	68.2	59.2	66.0		67.3	66.5	S.E. . . .	1	S. & K. S. 10	At 1h. 22m. P. M., and 1h. 28m. P. M.,
	3 P. M.	.167	63.5	62.5	56.1	61.2		62.3	63.0	S.W. . .	1	Rain . . .	Began at 2h. 30m. [slight earthquake
	6	.170	62.1	61.4	54.7	61.0		61.8	61.7	N.W. . .	1	K., S. & N. 10	[shocks.
	9	.156	61.1	56.0	52.9	55.4		57.4	57.4	E. . . .	1	K. & S. 2 .	
	Midn't.	.092	60.0	54.2	51.3	53.4	49.9	55.1	55.1	N.E. . . .	1	K. S. 10 . .	Max. temp., 69°.4; min., 54°.6.
8	6 A. M.	.085	59.3	54.3	52.7	53.4		54.8	54.8	N.W. . .	1	Rain . . .	Hard.
	9	.100	59.3	57.0	54.9	56.0		57.2	57.1	W.S.W. .	1	Rain . . .	Do.
	Noon.	.161	61.5	52.8	50.9	52.0		53.5	53.5	W.S.W. .	1	Rain . . .	Do.
	3 P. M.	.144	60.8	54.4	51.8	53.4		54.8	55.0	S.W. . .	1	S. 10 . . .	
	6	.189	56.0	51.0	49.1	50.6		51.6	52.2	S.S.W. . .	1	S. 10 . . .	Quantity of rain during the day, 2.446 in.
	9	.270	57.4	50.3	48.6	49.7		51.0	51.7	Eastward .	2	Rain . . .	Slight.
	Midn't.	.305	57.0	49.8	47.4	48.8	47.0	50.3	50.7	N.E. . . .	2	Rain . . .	Hard. Max. temp., 57°.4; min., 50°.3.
9	6 A. M.	.284	54.5	43.5	42.8	43.7		44.5	45.2	Calm . .	0	K. S. & C. 2	Late.
	9	.301	54.7	51.5	48.4	50.9		51.2	51.4	N.E. . . .	1	K. 3 . . .	
	Noon.	.293	56.3	56.8	51.1	56.1		57.1	56.6	Southward .	1	K. & C. 6 .	
	3 P. M.	.253	58.0	58.8	51.1	57.9		59.6	58.8	Calm . .	0	K. 1 . . .	
	6	.250	57.6	55.0	48.8	54.7		56.7	56.4	Southward .	1	0	
	9	.254	58.0	49.3	47.2	49.1		51.2	51.8	N.E. . . .	1	0	Quantity of rain after midnight, 0.040 in.
	Midn't.	28.246	60.3	46.4	44.4	45.5	41.1	47.6	48.3	Calm . .	0	0	Max. temp., 60°.2; min., 45°.0.

* At 5h. 50m. A. M. a slight earthquake shock. The shock came from the north and westward, where some lightning was seen during the night. About half-past 6 P. M. rain commenced, the sky being partly clear, and partly covered with K.

† Quantity of rain during the last forty-eight hours, 0.230 *in.* Heavy thunder-storm during the night, commencing about half-past 1 A. M., and lasting an hour or more; passed directly over the city with heavy rain; the peals of thunder remarkably loud and long continued.—J. M. G.

SEPTEMBER, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register.			Direction.	Force.		
							Sky.	Max.	Min.				
		Inches.	°	°	°	°	°	°	°				
10	6 A. M.	28.185	52.8	42.5	40.3	41.7		43.0	44.1	Calm . .	0	Fog 10 . .	Late.
	9	.180	53.0	49.0	45.7	47.2		48.4	48.8	S.W. . .	1	Fog 10 . .	Fog lifting.
	Noon.	.148	56.0	57.5	51.5	56.1		59.5	58.7	N.E. . . .	Air.	0	Few scattered K. and S.
	3 P. M.	.130	58.2	61.4	53.4	60.1		62.4	61.7	S. . . .	1	C. & K. 2 .	
	6	.167	56.8	51.4	45.9	51.0		53.0	53.2	Eastward .	Air.	K. 10 . .	One hour late.
	9	.178	55.5	48.6	45.5	48.0		50.0	50.7	S. eastward.	Air.	K. & S. 7 .	
	Midn't.	.177	53.6	45.9	43.7	45.7	38.6	47.0	47.8	N.W. . .	1	K. & C. K. 10	Max. temp., 63°.0; min., 43°.2.
11	6 A. M.	.206	51.3	40.5	39.5	40.8		42.2	43.5	N.W. . .	1	0	Few scattered C and K. At 0h. 55m.
	9	.231	51.5	50.5	46.8	49.5		50.3	50.7	N.W. . .	Air.	0	Smoky. [A. M. a slight earth-
	Noon.	.218	54.3	58.5	52.0	57.6		58.5	57.7	Westward .	1	0	Few K. & C. [quake. S. L. P.
	3 P. M.	.190	57.4	62.1	53.4	61.0		63.0	62.2	Southward .	1	0	Do.
	6	.206	58.7	57.2	52.5	56.5		58.8	58.5	S.S.W. . .	2	0	At 5h. 0m. 55s. P. M. moderate shock.
	9	.202	56.7	51.1	48.4	50.2		52.1	52.8	Calm . .	0	0	E. R. S.
	Midn't.	.153	55.0	46.8	44.4	45.5	38·6	47.7	48.6	Southward .	Air.	0	Max. temp., 63°.2; min., 43°.4.
12	6 A. M.	.085	51.0	42.0	40.5	41.9		43.2	44.5	Eastward .	Air.	0	
	9	.066	52.7	54.0	50.6	53.4		53.2	53.3	Calm . .	0	0	
	Noon.	.069	58.8	67.0	57.6	65.1		69.2	68.7	Calm . .	0	0	
	3 P. M.	.048	61.8	70.7	56.3	69.5		69.5	68.5	S.S.W. . .	2	0	
	6	.050	60.3	62.5	56.1	61.5		63.6	63.3	S.S.W. . .	1	0	
	9	.049	59.3	55.8	52.5	54.9		56.5	56.8	Calm . .	0	0	
	Midn't.	.024	56.0	45.5	44.6	45.0	39.8	46.8	48.5	N.N.W. . .	2	Fog 10 . .	An hour late. Max. temp., 69°.7; min., 44°.2.
13	7 A. M.	.047	54.3	48.0	46.2	47.2		48.7	49.0	Calm . .	0	Fog 10 . .	
	9	.071	54.3	49.6	47.2	48.1		50.2	50.0	Eastward .	1	Fog 10 . .	
	Noon.	.080	55.7	53.4	50.2	52.0		54.2	54.0	Eastward .	Air.	S. & fog 10 .	
	3 P. M.	.080	56.4	58.7	52.9	56.3		58.4	57.7	N.E. . . .	Air.	S. & K. S. 10	
	6	.097	57.0	56.0	51.8	54 9		57.7	57.7	W.S.W. .	Air.	S. & K. S. 9	Position of thermometers changed to north side of house.
	9	.098	56.8	53.0	50.0	52.5		53.3	53.3	N.E. . . .	2	S. 2 . . .	
	Midn't.	.068	55.0	49.1	47.0	48.6	44.0	48.3	48.0	N.E. . . .	2	0	Max. temp., 60°.3; min., 48°.0.
14	6 A. M.	.055	51.7	44.2	43.5	43.9		42.8	43.5	Calm . .	0	Fog 10 . .	
	9	.128	51.8	53.7	49.5	51.5		55.1	55.0	W. . . .	Air.	Fog 10 . .	Half hour late.
	Noon.	.126	53.7	57.4	54.0	56.5		61.3	60.2	S. westward	2	K. 4 . . .	
	3 P. M.	.140	56.5	58.5	53.1	57.9		59.7	59.2	S.W. . .	4	K. & K. S. 7	
	6	.157	56.3	53.3	50.0	52.9		55.0	55.2	S.W. . .	1	S. & K. S. 2	
	9	.175	55.3	51.8	49.3	51.1		52.3	52.8	Calm . .	0	S. 10 . .	
	Midn't.	.216	55.0	50.8	48.8	50.0	40.3	51.3	51.6	Calm . .	0	S. 10 . .	Max. temp., 60°.2; min., 42°.0.
15	7 A. M.	.283	54.0	49.5	47.6	49.1		49.8	50.2	S. eastward.	Air.	S. & K. S. 10	
	9	.291	54.5	53.7	50.6	52.2		52.7	52.6	Calm . .	0	S. & K. S. 10	
	Noon.	.291	55.8	59.3	52.0	57.4		58.3	57.7	Calm . .	0	S. & K. S. 10	
	3 P. M.	.252	56.7	61.0	53.1	59.0		60.7	60.0	S.W. . .	1	K. & K. S. 10	Clouds breaking.
	6	.252	57.3	56.9	51.5	55.6		57.6	57.3	Calm . .	0	K. & K. S. 10	Clear to westward.
	9	.260	57.0	52.0	49.1	51.3		52.3	53.4	N.E. . . .	1	0	
	Midn't.	.182	53.8	45.6	43.9	45.7	43.2	47.1	47.8	N.E. . . .	1	0	Taken at 2 A. M. Max. temp., 63°.0; min., 42°.5.
16	6 A. M.	.156	52.0	51.8	48.8	52.7		49.5	49.8	N.W. . .	1	0	
	9	.143	53.6	55.8	51.8	54.9		55.1	54.8	Calm . .	0	0	
	Noon.	.108	60.8	68.8	58.7	68.0		65.3	64.7	Calm . .	0	0	Scattered C.
	3 P. M.	.071	65.0	74.1	61.0	72.9		71.8	71.1	S.W. . .	1	0	Do.
	6	.066	65.8	69.7	59.0	68.0		68.7	68.3	Calm . .	0	C. & C. S. 4	
	9	.055	62.1	60.0	54.3	58.5		60.5	60.7	Calm . .	0	0	Clouds around horizon.
	Midn't.	28.035	60.3	55.8	50.6	54.5	40.3	55.7	56.5	N.E. . . .	1	0	Max. temp., 73°.1; min., 44°.8.

SEPTEMBER, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°	°	°				
4	7 A. M.	28.245	56.8	49.7	47.4	48.8		50.5	50.8	Calm . .	0	K. & K. S. 10	
	9	.262	56.4	54.7	49.3	52.5		53.7	53.6	S.W. . .	1	S. & K. S. 10	
	Noon.	.261	57.8	54.5	49.3	54.0		54.2	54.0	Westward .	Air.	S. & K. S. 10	
	3 P. M.	.250	60.0	57.4	51.3	55.6		57.7	57.4	S.W. . .	2	K. & K. S. 7	
	6	.267	58.9	53.1	48.6	52.7		55.0	55.0	S.W. . .	Air.	K. S. & C. 1	Around horizon.
	9	.272	58.5	49.0	46.2	48.1		50.3	51.0	S.E. . . .	1	K. & C. S. 4	
	Midn't	.256	55.8	46.0	43.2	45.0	42.4	46.7	48.0	N.W. . .	1	0	S. around horizon. Max. temp., 59°.5; min., 47°.4.
5	7 A. M.	.250	55.8	45.4	43.5	44.8		45.6	46.5	S. westward	Air.	S. & K. S. 10	
	9	.248	53.6	48.5	45.3	47.2		48.3	48.7	Southward .	1	S. & K. S. 10	
	Noon.	.244	57.0	56.2	49.3	53.8		56.3	55.7	S.W. . .	1	K. 9 . . .	
	3 P. M.	.225	59.4	59.0	52.0	57.9		59.8	59.0	S.S.W. . .	1	S. C. & K. 3	
	6	.222	58.9	53.7	48.0	52.9		55.2	55.0	S.E. . . .	1	C. & S. 4 .	
	9	.214	55.4	46.3	43.3	46.0		48.4	49.2	N.E. . . .	1	C. K. & S. 1	
	Midn't.	.172	54.4	42.9	40.8	42.3	39.5	44.8	45.8	N.E. . . .	Air.	C. & C. S. 7	Lunar halo. Max. temp., 60°.2; min., 44°.5.
*6	6 A. M.	.104	50.7	40.9	39.3	40.8		42.0	43.3	N. westward	Air.	K., C. K. & C. 7	Late.
	9	.110	51.6	47.2	44.4	47.2		47.3	47.8	W. . . .	1	C. K. & K. 3	
	Noon.	.096	55.3	63.0	53.8	62.0		62.8	62.3	W. . . .	1	K. & C. K. 1	
	3 P. M.	.092	59.0	70.0	56.7	67.7		68.4	68.0	Eastward .	Air.	K. & K. S. 8	Rainbow at 5h. 15m.
	6	.124	59.9	62.6	54.0	61.3		63.7	63.3	Southward .	Air.	K. S. & N. 10	Rain over mountains to eastward.
	9	.162	59.7	60.0	53.1	59.7		61.0	60.7	Calm . .	0	K., K. S. & N. 8	Slight rain.
	Midn't.	.162	59.2	58.8	53.4	57.6	37.7	59.6	59.5	Calm . .	0	K., S. & N. 8	Rain. Max. temp., 68°.8; min., 42°.3.
†7	6 A. M.	.126	58.4	56.0	51.3	55.2		56.7	56.4	N.W. . .	1	S., K. S. & N. 9	Rain over mountains.
	9	.160	58.5	59.6	54.5	58.5		59.4	59.0	Calm . .	0	S. & K. S. 10	
	Noon.	.160	61.6	68.2	59.2	66.0		67.3	66.5	S.E. . . .	1	S. & K. S. 10	At 1h. 22m. P. M., and 1h. 28m. P. M.,
	3 P. M.	.167	63.5	62.5	56.1	61.2		62.3	63.0	S.W. . .	1	Rain . . .	Began at 2h. 30m. [slight earthquake
	6	.170	62.1	61.4	54.7	61.0		61.8	61.7	N.W. . .	1	K., S. & N. 10	[shocks.
	9	.156	61.1	56.0	52.9	55.4		57.4	57.4	E. . . .	1	K. & S. 2 .	
	Midn't.	.092	60.0	54.2	51.3	53.4	49.9	55.1	55.1	N.E. . . .	1	K. S. 10 . .	Max. temp., 69°.4; min., 54°.6.
8	6 A. M.	.085	59.3	54.3	52.7	53.4		54.8	54.8	N.W. . .	1	Rain . . .	Hard.
	9	.100	59.3	57.0	54.9	56.0		57.2	57.1	W.S.W. .	1	Rain . . .	Do.
	Noon.	.161	61.5	52.8	50.9	52.0		53.5	53.5	W.S.W. .	1	Rain . . .	Do.
	3 P. M.	.144	60.8	54.4	51.8	53.4		54.8	55.0	S.W. . .	1	S. 10 . . .	
	6	.189	56.0	51.0	49.1	50.6		51.6	52.2	S.S.W. . .	1	S. 10 . . .	Quantity of rain during the day, 2.446 in.
	9	.270	57.4	50.3	48.6	49.7		51.0	51.7	Eastward .	2	Rain . . .	Slight.
	Midn't.	.305	57.0	49.8	47.4	48.8	47.0	50.3	50.7	N.E. . . .	2	Rain . . .	Hard. Max. temp., 57°.4; min., 50°.3.
9	6 A. M.	.284	54.5	43.5	42.8	43.7		44.5	45.2	Calm . .	0	K. S. & C. 2	Late.
	9	.301	54.7	51.5	48.4	50.9		51.2	51.4	N.E. . . .	1	K. 3 . . .	
	Noon.	.293	56.3	56.8	51.1	56.1		57.1	56.6	Southward .	1	K. & C. 6 .	
	3 P. M.	.253	58.0	58.8	51.1	57.9		59.6	58.8	Calm . .	0	K. 1 . . .	
	6	.250	57.6	55.0	48.8	54.7		56.7	56.4	Southward .	1	0	
	9	.254	58.0	49.3	47.2	49.1		51.2	51.8	N.E. . . .	1	0	Quantity of rain after midnight, 0.040 in.
	Midn't.	28.246	60.3	46.4	44.4	45.5	41.1	47.6	48.3	Calm . .	0	0	Max. temp., 60°.2; min., 45°.0.

* At 5h. 50m. A. M. a slight earthquake shock. The shock came from the north and westward, where some lightning was seen during the night. About half-past 6 P. M. rain commenced, the sky being partly clear, and partly covered with K.

† Quantity of rain during the last forty-eight hours, 0.230 *in.* Heavy thunder-storm during the night, commencing about half-past 1 A. M., and lasting an hour or more; passed directly over the city with heavy rain; the peals of thunder remarkably loud and long continued.—J. M. G.

SEPTEMBER, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°	°	°				
10	6 A. M.	28.185	52.8	42.5	40.3	41.7		43.0	44.1	Calm . .	0	Fog 10 . .	Late.
	9	.180	53.0	49.0	45.7	47.2		48.4	48.8	S.W. . .	1	Fog 10 . .	Fog lifting.
	Noon.	.148	56.0	57.5	51.5	56.1		59.5	58.7	N.E. . . .	Air.	0	Few scattered K. and S.
	3 P. M.	.130	58.2	61.4	53.4	60.1		62.4	61.7	S. . . .	1	C. & K. 2 .	
	6	.167	56.8	51.4	45.9	51.0		53.0	53.2	Eastward .	Air.	K. 10 . .	One hour late.
	9	.178	55.5	48.6	45.5	48.0		50.0	50.7	S. eastward.	Air.	K. & S. 7 .	
	Midn't.	.177	53.6	45.9	43.7	45.7	38.6	47.0	47.8	N.W. . .	1	K. & C. K. 10	Max. temp., 63°.0; min., 43°.2.
11	6 A. M.	.206	51.3	40.5	39.5	40.8		42.2	43.5	N.W. . .	1	0	Few scattered C and K. At 0h. 55m.
	9	.231	51.5	50.5	46.8	49.5		50.3	50.7	N.W. . .	Air.	0	Smoky. [A. M. a slight earth-
	Noon.	.218	54.3	58.5	52.0	57.6		58.5	57.7	Westward .	1	0	Few K. & C. [quake. S. L. P.
	3 P. M.	.190	57.4	62.1	53.4	61.0		63.0	62.2	Southward .	1	0	Do.
	6	.206	58.7	57.2	52.5	56.5		58.8	58.5	S.S.W. . .	2	0	At 5h. 0m. 55s. P. M. moderate shock.
	9	.202	56.7	51.1	48.4	50.2		52.1	52.8	Calm . .	0	0	E. R. S.
	Midn't.	.153	55.0	46.8	44.4	45.5	38.6	47.7	48.6	Southward .	Air.	0	Max. temp., 63°.2; min., 43°.4.
12	6 A. M.	.085	51.0	42.0	40.5	41.9		43.2	44.5	Eastward .	Air.	0	
	9	.086	52.7	54.0	50.6	53.4		53.2	53.3	Calm . .	0	0	
	Noon.	.069	58.8	67.0	57.6	65.1		69.2	68.7	Calm . .	0	0	
	3 P. M.	.048	61.8	70.7	56.3	69.5		69.5	68.5	S.S.W. . .	2	0	
	6	.050	60.3	62.5	56.1	61.5		63.6	63.3	S.S.W. . .	1	0	
	9	.049	59.3	55.8	52.5	54.9		56.5	56.8	Calm . .	0	0	
	Midn't.	.024	56.0	45.5	44.6	45.0	39.8	46.8	48.5	N.N.W. . .	2	Fog 10 . .	An hour late. Max. temp., 69°.7; min., 44°.2.
13	7 A. M.	.047	54.3	48.0	46.2	47.2		48.7	49.0	Calm . .	0	Fog 10 . .	
	9	.071	54.3	49.6	47.2	48.1		50.2	50.0	Eastward .	1	Fog 10 . .	
	Noon.	.080	55.7	53.4	50.2	52.0		54.2	54.0	Eastward .	Air.	S. & fog 10 .	
	3 P. M.	.060	56.4	58.7	52.9	56.3		58.4	57.7	N.E. . . .	Air.	S. & K. S. 10	
	6	.097	57.0	56.0	51.8	54.9		57.7	57.7	W.S.W. .	Air.	S. & K. S. 9	Position of thermometers changed to
	9	.098	56.8	53.0	50.0	52.5		53.3	53.3	N.E. . . .	2	S. 2 . . .	north side of house.
	Midn't.	.068	55.0	49.1	47.0	48.6	44.0	48.3	48.0	N.E. . . .	2	0	Max. temp., 60°.3; min., 48°.0.
14	6 A. M.	.055	51.7	44.2	43.5	43.9		42.8	43.5	Calm . .	0	Fog 10 . .	
	9	.128	51.8	53.7	49.5	51.5		55.1	55.0	W. . . .	Air.	Fog 10 . .	Half hour late.
	Noon.	.126	53.7	57.4	54.0	56.5		61.3	60.2	S. westward	2	K. 4 . . .	
	3 P. M.	.140	56.5	58.5	53.1	57.9		59.7	59.2	S.W. . .	4	K. & K. S. 7	
	6	.157	56.3	53.3	50.0	52.9		55.0	55.2	S.W. . .	1	S. & K. S. 2	
	9	.175	55.3	51.8	49.3	51.1		52.3	52.8	Calm . .	0	S. 10 . .	
	Midn't.	.216	55.0	50.8	48.8	50.0	40.3	51.3	51.6	Calm . .	0	S. 10 . .	Max. temp., 60°.2; min., 48°.0.
15	7 A. M.	.283	54.0	49.5	47.6	49.1		49.8	50.2	S. eastward.	Air.	S. & K. S. 10	
	9	.291	54.5	53.7	50.6	52.2		52.7	52.6	Calm . .	0	S. & K. S. 10	
	Noon.	.291	55.8	59.3	52.0	57.4		58.3	57.7	Calm . .	0	S. & K. S. 10	
	3 P. M.	.252	56.7	61.0	53.1	59.0		60.7	60.0	S.W. . .	1	K. & K. S. 10	Clouds breaking.
	6	.252	57.3	56.9	51.5	55.6		57.6	57.3	Calm . .	0	K. & K. S. 10	Clear to westward.
	9	.260	57.0	52.0	49.1	51.3		52.3	53.4	N.E. . . .	1	0	
	Midn't.	.182	53.8	45.8	43.9	45.7	43.2	47.1	47.8	N.E. . . .	1	0	Taken at 2 A. M. Max. temp., 63°.0; min., 42°.5.
16	6 A. M.	.156	52.0	51.8	48.8	52.7		49.5	49.8	N.W. . .	1	0	
	9	.143	53.6	55.8	51.8	54.9		55.1	54.8	Calm . .	0	0	
	Noon.	.108	60.8	68.8	58.7	68.0		65.3	64.7	Calm . .	0	0	Scattered C.
	3 P. M.	.071	65.0	74.1	61.0	72.9		71.8	71.1	S.W. . .	1	0	Do.
	6	.066	65.8	69.7	59.0	68.0		68.7	68.3	Calm . .	0	C. & C. S. 4	
	9	.055	62.1	60.0	54.3	58.5		60.5	60.7	Calm . .	0	0	Clouds around horizon.
	Midn't.	28.035	60.3	55.8	50.6	54.5	40.3	55.7	56.5	N.E. . . .	1	0	Max. temp., 73°.1; min., 44°.8.

SEPTEMBER, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°		°	°				
17	6 A. M.	28.024	57.0	51.0	47.0	50.6		52.0	52.5	W.N.W. .	1	0	
	9	.037	59.0	66.3	57.4	64.9		62.7	62.4	N.E. . . .	3	0	
	Noon.	.037	64.0	75.7	61.0	74.5		73.2	72.5	W.S.W. .	2	0	C. to westward.
	3 P. M.	.060	67.3	73.3	64.1	71.0		72.8	72.4	S.W. . .	3	C. 4 . . .	
	6	.081	64.3	62.2	58.3	61.7		64.2	63.6	S.W. . .	1	C. & C. S. 7	
	9	.072	60.3	56.0	52.7	55.2		57.7	57.7	Calm . .	0	0	Scattered C.
	Midn't.	.072	58.8	54.0	51.5	53.1	44.3	55.0	55.0	N.W. . .	1	S. 10 . .	Late one hour. Max. temp., 73°.8; min., 51°.3.
18	7 A. M.	.097	58.4	53.0	51.1	52.0		53.6	53.4	S.W. . .	1	Fog 10 . .	Drizzling rain.
	9	.147	57.8	53.6	51.5	52.5		53.6	53.7	S.W. . .	2	Fog 10 . .	Do. do.
	Noon.	.208	57.7	53.7	50.6	53.1		53.7	53.7	S.W. . .	2	Fog 10 . .	Do. do.
	3 P. M.	.220	58.0	55.8	52.0	54.5		55.8	55.5	Calm . .	0	S. & K. S. 10	
	6	.220	58.6	54.5	51.8	53.4		55.0	55.0	S.W. . .	3	S. & K. S. 10	
	9	.243	56.7	50.8	48.6	50.2		51.6	51.7	N.E. . . .	1	S. 10 . . .	Quantity of rain during the day 0.057 *in.*
	Midn't.	.213	54.5	49.5	47.4	49.1	46.4	50.2	50.7	S. westward	1	S. 10 . . .	Max. temp., 57°.3; min., 50°.2.
19	7 A. M.	.235	56.0	48.0	45.9	47.2		48.2	48.5	S.W. . .	2	S. & K. S. 10	An earthquake at 8*h.* 18*m.* P. M.; also
	9	.251	55.1	54.2	49.5	51.8		52.3	52.4	S.W. . .	Air.	S. & K. S. 10	others at 9*h.* 28*m.*15*s.* and 9*h.*28*m.*27*s.*
	Noon.	.230	56.7	59.2	52.5	57.9		58.5	57.8	S. westward	1	K. & K. S. 9	P. M.—the latter lasting 5 seconds.
	3 P. M.	.197	57.9	58.7	51.1	57.6		58.7	58.3	S. westward	2	S. & K. S. 10	
	6	.160	57.7	53.5	49.3	52.9		54.3	54.4	W.N.W. .	2	S. & K. S. 10	Late. Clear to westward.
	9	.149	56.7	51.5	48.4	51.1		52.2	52.7	N.W. . .	3	S. & K. S. 10	
	Midn't.	.078	55.0	49.8	46.8	49.1	45.0	50.1	50.8	N.W. . .	3 & 5	S. & K. S. 10	Max. temp., 59°.6; min., 48°.2.
20	7 A. M.												
	9	.063	55.7	56.8	50.6	54.7		55.8	55.5	Westward .	Air.	K. & S. 10 .	
	Noon.	.111	56.8	60.3	52.9	58.3		58.8	58.3	Westward .	Air.	S. & K. S. 10	
	3 P. M.	.134	58.0	57.8	51.3	56.3		57.7	57.2	S.W. . .	2	S. & K. S. 10	
	6	.170	57.8	55.0	50.4	54.3		56.2	55.8	S.W. . .	1	K.,C.K.&C.8	
	9	.196	55.6	50.5	46.0	50.2		51.5	51.7	N.W. . .	Air.	S. 10 . . .	
	Midn't.	.192	55.1	48.5	44.6	48.1	43.0	49.4	49.8	N.W. . .	1	S. 10 . . .	Max. temp., 59°.7; min., 49°.2.
21	6 A. M.	.212	52.6	47.0	43.7	46.4		47.0	47.5	Calm . .	0	S. & K. S. 10	Late.
	9	.242	53.2	55.9	48.8	53.6		63.8	53.4	W.S.W. .	2	K.,S.&C.K.8	
	Noon.	.230	56.2	60.8	53.1	59.9		61.0	60.2	S.W. . .	2	K. & C. 1 .	Mostly around horizon.
	3 P. M.	.197	58.8	65.0	55.4	63.9		64.7	63.8	S.W. . .	3	K. & C. 5 .	
	6	.212	58.8	57.7	50.9	56.7		59.2	59.0	S.W. . .	1	K.,S.&C.K. 9	
	9	.221	58.0	54.8	50.4	54.0		56.2	56.3	Calm . .	0	S. 10 . . .	
	Midn't.	.162	56.7	51.2	48.4	50.6	40.3	52.7	52.8	Calm . .	0	S. C. 1 . .	1*h.* 30*m.* late. Max. temp., 64°.7; min., 45°.6.
22	6 A. M.	.214	54.0	47.5	45.5	47.4		48.8	48.8	Calm . .	0	0	
	9	.229	55.5	56.5	51.3	55.9		56.3	56.0	Calm . .	0	0	
	Noon.	.190	59.2	67.3	57.9	66.4		65.2	64.5	S.S.W. . .	1	C. 1 . . .	
	3 P. M.	.139	62.5	73.0	60.3	70.5		72.0	71.0	Southward .	1	C. & C. K. 5	
	6	.160	62.2	65.1	58.1	63.7		66.2	65.7	S.S.W. . .	1	C. & C. K. 6	
	9												
	Midn't.	.147	60.0	55.4	51.5	54.0	43.8	56.8	56.7	Calm . .	0	C. 1 . . .	Max. temp., 72°.7; min., 48°.4.
23	6 A. M.	.105	57.3	51.6	48.8	50.6		52.7	52.7	Calm . .	0	0	Few scattered C. and K. Quantity of
	9	.105	58.7	63.1	57.4	62.2		61.2	60.6	N.W. . .	Air.	0	Smoky. [rain during the night 0.260*in.*
	Noon.	.081	62.0	70.0	60.6	68.7		68.3	67.7	E.S.E. . .	1	C. 1 . . .	Do.
	3 P. M.	.061	67.4	74.5	62.8	73.2		73.6	73.0	S.W. . .	3	C. & C. S. 7	At 7*h.* 30*m.* P. M. wind blowing strong
	6	.102	64.0	60.5	53.6	59.7		61.8	61.6	S.E. . . .	2	S. & K. S. 10	from W'd; continued about an hour.
	9	.209	57.3	50.8	47.0	50.6		51.7	52.4	W. . . .	3	Rain . . .	Light. [min., 50°.0.
	Midn't.	28.340	58.0	49.0	45.3	48.4	44.0	49.8	50.2	N.E. . . .	3 & 4	Rain . . .	Taken at 1 A. M. Max. temp., 73°.4;

SEPTEMBER, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Max.	Min.	Direction.	Force.		
		Inches.	°	°	°	°	°	°	°				
24	7 A. M.	28.308	56.2	51.0	45.7	50.9		48.7	49.3	N.W. . .	1	S.,K.S.&K.5	
	9	.360	56.3	54.0	48.0	51.8		53.8	54.5	N.W. . .	2	K. & K. S. 7	
	Noon.	.369	57.6	60.1	51.3	59.0		60.2	59.8	E. . . .	1	K. 1 . . .	Over Andes.
	3 P. M.	.340	60.0	64.3	53.1	63.0		64.7	64.0	E.S.E. . .	1	K. & C. 2 .	Do.
	6	.353	60.8	59.0	58.1	58.3		59.8	60.0	S.W. . .	Air.	0	C. to westward.
	9	.351	58.3	53.0	49.1	52.0		53.8	54.3	N.E. . . .	Air.	0	
	Midn't.	.310	55.3	48.3	45.5	47.6	41.7	49.4	50.2	N.E. . . .	Air.	0	Max. temp., 65°.2; min., 47°.3.
25	6 A. M.	.255	52.0	47.5	44.6	47.0		48.0	48.6	Calm . .	0	S. & C. S. 10	
	9	.263	54.5	58.0	52.2	56.9		57.6	57.5	Calm . .	0	S. & C. S. 10	
	Noon.	.265	59.0	66.0	57.6	65.3		66.0	65.0	Southward .	2	C. 9 . . .	Very thin.
	3 P. M.	.235	61.5	71.5	58.3	68.7		70.3	70.0	S.W. . .	1	S.,C.& C.S.10	
	6	.244	62.9	63.0	55.6	62.4		64.0	63.8	Southward .	Air.	C. & C. S. 5	
	9	.236	60.4	56 5	52.5	55.6		57.1	57.8	Calm . .	0	0	
	Midn't.	.232	58.2	52.5	49.1	51.8	41.3	53.4	53.3	N'd and W'd	1	S. & C. S. 1	Max. temp., 70°.8; min., 46°.7.
26	7 A. M.	.200	55.2	53.2	49.5	54.5		52.2	52.2	W.N.W. .	Air.	C. 5 . . .	
	9	.227	57.0	60.3	54.0	59.0		59.0	58.6	S.E. . . .	1	C. & C. S. 6	
	Noon	.179	61.3	71.8	60.6	70.8		69.5	68.3	N.W. . .	1	C. & C. S. 8	
	3 P. M.	.158	64.5	74.6	59.2	72.9		73.0	72.3	S.E. . . .	1	C. & C. S. 6	
	6	.164	66.4	68.5	56.9	66.0		68.6	68.2	E. . . .	1	C. & C. S. 8	
	9	.154	62.7	60.5	53.4	59.2		61.7	61.6	Calm . .	0	C. & C. S. 8	
	Midn't.	.125	59.4	54.7	48.8	54.0	43.5	56.3	56.3	N.E. . . .	1	C. & S. 1 .	Max. temp., 73°.2; min., 48°.3.
27	6 A. M.	.100	58.6	52.8	48.4	52.5		53.5	53.7	Calm . .	0	C. & C. S. 10	
	9	.109	60.4	67.0	58.3	67.7		65.0	64.2	S. eastward.	1	C. & C. S. 10	
	Noon.	.111	63.6	74.0	60.8	72.7		72.7	71.7	S.W. . .	2	S. & C. S. 10	
	3 P. M.	.074	65.1	72.0	60.3	71.0		72.8	72.2	S.W. . .	3 & 4	S. & C. S. 10	
	6	.086	63.6	60.8	54.9	60.3		61.8	62.0	S. W. by S. .	1	S. & C. S. 10	
	9	.123	59.4	52.8	50.2	52.9		53.8	54.6	Calm . .	0	S. & C. S. 10	
	Midn't.	.123	57.5	52.2	49.5	51.5	47.3	53.1	53.7	N.W. . .	2	S. 10 . . .	Max. temp., 74°.2; min., 52°.3.
28	6 A. M.	.226	57.3	50.2	48.0	49.5		50.8	50.8	Eastward .	1	Fog 10 .	
	9	.240	57.5	52.3	48.8	50.9		52.8	53.1	Calm . .	0	S. 10 . .	
	Noon.	.249	57.7	55.7	50.9	54.0		56.3	56.2	Calm . .	0	S. 10 . .	
	3 P. M.	.274	58.0	52.0	49.5	51.5		52.4	52.8	S.W. . .	2	Rain . . .	About 3 P. M. a very light rain of short duration. Not sufficient to measure.
	6	.281	57.5	52.0	49.1	51.1		52.3	52.5	S.W. . .	1	S.10 . . .	
	9	.277	57.2	50.0	48.1	49.3		50.4	51.3	Calm . .	0	S.10 . . .	
	Midn't.	.239	55.8	48.9	47.2	48.6	46.3	49.4	50.2	N. eastward	1	S. & C. S. 10	Max. temp., 56°.5; min., 49°.0.
29	6 A. M.	.156	54.1	48.5	46.4	47.6		48.7	49.2	Calm . .	0	Fog 10 . .	
	9	.131	55.2	59.2	52.4	56.3		58.7	58.4	S.E. . .	1	K. & S. 9 .	
	Noon.	.099	57.7	61.2	54.7	60.1		61.7	61.2	S.E. . .	1	K. 1 . . .	
	3 P. M.	.071	60.2	63.1	55.9	62.4		64.2	63.5	S.W. . .	3	K. & K. S. 9	
	6	.098	59.7	53.5	50.0	52.7		55.0	55.2	S.W. . .	2	S. & K. S. 10	
	9	.171	56.8	47.9	44.6	47.2		48.7	49.7	S.W. . .	2	Rain . . .	Very light.
	Midn't.	.191	54.3	45.0	43.5	45.0	42.0	45.8	46.5	Eastward .	1 & 2	Mist 10 . .	Max. temp., 64°.8; min., 45°.2.
30	6 A. M.	.228	52.8	47.0	43.5	46.2		47.2	47.8	Calm . .	0	S. & K. S. 10	
	9	.266	53.8	54.3	47.4	51.5		53.6	53.8	S.W. . .	1	S. & K. S. 10	
	Noon.	.282	55.7	57.7	48.1	55.6		59.1	59.6	S.W. . .	1	K. 4 . . .	
	3 P. M.	.267	57.2	60.5	49.3	59.0		60.8	60.4	S.W. . .	3	K. 6 . . .	
	6	.271	57.3	53.4	46.4	52.7		55.0	55.0	S.W. . .	1	K. & K. S. 8	
	9	.300	55.1	48.3	44.4	47.6		49.4	50.2	N.E. . . .	1	K. & S. 2 .	[min., 44°.5.
	Midn't.	28.281	53.1	44.0	41.5	43.5	40.7	44.8	46.0	Calm . .	0	0	One hour late. Max. temp., 61°.2;

OCTOBER, 1851.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Register. Max.	Register. Min.	Direction.	Force.		
		Inches.	°	°	°	°	°	°	°				
1	6 A. M.	28.298	50.6	44.2	41.5	43.7		44.0	45.0	Calm . .	0	S. & K. S. 10	
	9	.280	52.4	53.0	46.8	50.9		53.0	52.8	S.W. . .	1	K. 5 . . .	
	Noon.	.239	55.0	59.4	51.3	58.3		59.2	58.3	S.W. . .	1	0	Few K. around horizon.
	3 P. M.	.214	58.2	63.2	51.5	61.2		63.4	62.8	Calm . .	0	0	Do.
	6	.232	58.7	59.2	50.6	58.3		60.3	60.0	S.W. . .	1	0	C. around horizon.
	9	.265	57.2	51.7	46.6	50.6		52.7	53.3	Calm . .	0	0	
	Midn't.	.240	55.5	48.0	44.8	47.2	38.8	48.8	50.0	Calm . .	0	0	Max. temp., 64°.2; min., 43°.0.
2	6 A. M.	.160	52.0	49.2	44.1	49.3		48.4	48.6	Calm . .	0	C. & C. S. 6	
	9	.127	54.2	57.6	51.3	56.5		56.3	55.8	N.W. . .	1	C. & C. S. 9	
	Noon.	.066	57.9	65.5	54.5	64.6		64.8	64.2	Calm . .	0	C. & C. S. 10	
	3 P. M.	.086	59.3	66.5	55.4	65.3		66.2	65.6	S.W. . .	2 & 3	S. & K. S. 10	
	6	.104	59.0	57.2	51.3	56.3		57.8	57.7	N.E. . . .	1	S. & K. S. 10	
	9	.145	57.7	53.8	49.3	53.4		54.3	54.7	N.W. . .	2	S. & K. S. 10	
	Midn't.	.159	56.7	51.0	47.2	50.6	39.0	51.3	51.8	S.S.E. . .	2	S. & K. S. 10	Max. temp., 66°.4; min., 43°.8.
3	6 A. M.	.145	54.8	49.0	46.2	48.4		49.0	49.7	Calm . .	0	S. & K. S. 9	
	9	.186	55.3	53.3	48.4	51.5		53.2	53.6	Calm . .	0	S. & K. S. 10	
	Noon.	.242	56.3	56.5	49.3	54.5		55.8	56.2	S.W. . .	2	S. & K. S. 10	
	3 P. M.	.230	56.4	56.0	49.5	54.7		56.3	56.2	E.N.E. . .	1	S. & K. S. 10	
	6	.228	56.7	53.2	48.6	52.2		53.4	53.4	S.E. . . .	1	S. & K. S. 10	
	9	.229	55.9	50.3	46.2	49.5		50.3	51.2	N.E. . .	Air.	S. & K. S. 10	
	Midn't.	.182	54.7	48.0	44.1	47.4	42.9	47.8	48.5	N.E. . . .	2	S. & K. S. 10	Max. temp., 56°.6; min., 48°.2.
*4	6 A. M.	.230	53.7	47.0	44.8	46.6		46.9	47.6	N.W. . .	Air.	Rain . . .	Hard.
	9	.261	53.7	52.5	48.0	50.9		51.2	51.2	W.N.W. .	2	S. & K. S. 9	
	Noon.	.260	54.8	58.0	50.9	55.2		57.1	56.6	W.N.W. .	1	Rain . . .	Clear spots to northward.
	3 P. M.	.230	56.4	60.3	50.2	58.3		60.8	60.4	N.W. . .	2	S. & K. S. 9	
	6	.271	56.2	52.4	46.8	51.8		52.8	53.0	S.W. . .	1	S. & K. S. 10	
	9	.279	54.2	49.2	45.9	48.4		49.7	50.2	Calm . .	0	Rain . . .	Light.
	Midn't.	.216	53.2	47.8	44.8	47.0	42.6	48.3	49.0	Calm . .	0	S. 10 . . .	Max. temp., 63°.5; min., 46°.2.
5	6 A. M.	.169	52.0	47.0	44.6	46.4		47.2	47.6	Calm . .	0	S. 10 . .	Clear to westward.
	9	.202	52.7	55.0	48.4	52.7		55.0	55.6	S.W. . .	1	S.,K. & C.K.7	
	Noon.	.164	55.5	63.2	50.6	63.0		62.2	61.6	W.N.W. .	4	K. & C. 10 .	
	3 P. M.	.160	57.5	63.5	49.5	62.0		63.3	62.8	W.N.W. .	2	K. & K. S. 9	
	6	.232	55.4	51.7	47.6	50.6		52.5	52.5	Southward .	1	K. & K. S. 7	Few drops of rain about 5 P. M.
	9	.273	54.7	47.2	44.8	47.0		48.0	48.7	Calm . .	Air.	0	
	Midn't.	.310	52.7	45.4	43.0	44.6	41.8	45.2	46.3	N.E. . . .	1	0	Max. temp., 65°.3; min., 45°.8.
6	7 A. M.	.304	50.3	50.1	46.8	52.7		47.7	48.4	S.W. . .	Air.	0	
	9	.326	52.2	53.8	49.1	53.1		52.7	52.6	S.W. . .	1	0	
	Noon.	.396	55.0	62.1	52.0	61.2		61.7	61.1	S.W. . .	Air.	0	
	3 P. M.	.281	58.3	67.6	54.7	66.2		67.2	66.3	S.W. . .	1	C. 1 . . .	Around horizon.
	6	.291	59.0	62.8	52.5	61.2		63.2	62.6	S.W. . .	Air.	C. & C. S. 4	
	9	.293	57.8	55.2	50.0	54.3		56.3	56.6	Calm . .	0	C. & C. S. 4	[67°.8; min., 42°.3.
	Midn't.	28.262	56.4	51.0	47.2	50.0	33.0	51.6	52.0	N.E. . . .	Air.	C.C.S.&C.K. 7	30m. late; lunar halo. Max. temp.,

* Heavy fall of snow over the mountains, descending quite low, especially on the coast range, where it was lower than we have before seen it.

At noon, light rain for about 15*m*., and during the afternoon several showers of short duration. Quantity of rain during day, 1.229 *in*.

OCTOBER, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register.			Direction.	Force.		
							Sky.	Max.	Min.				
		Inches.	°	°	°	°	°	°	°				
7	6 A. M.	28.181	52.5	48.0	45.5	48.6		49.6	49.4	Calm . .	0	0	
	9	.190	55.4	61.0	54.0	60.8		59.8	59.3	N.E. . . .	Air.	C. 3 . . .	C. very slight.
	Noon.	.216	59.4	76.8	59.0	70.5		70.2	69.1	Calm . .	0	C. & C. S. 8	
	3 P. M.	.196	62.0	75.7	59.0	73.8		74.0	73.0	S.W. . .	1	C. & C. S. 9	
	6	.202	62.7	69.7	57.6	68.7		69.8	68.8	S.W. . .	1	C. & C. S. 3	
	9	.229	61.0	60.0	52.7	59.0		60.7	60.6	Eastward .	Air.	0	C. and C. S. around horizon.
	Midn't.	.200	59.6	55.5	50.9	54.9	42.8	56.0	56.3	Calm . .	0	C. 1 . . .	30m. late. Max. temp., 73°.8; min., 46°.8.
8	6 A. M.	.174	55.7	51.5	48.8	53.4		52.6	52.3	Calm . .	0	0	C. around horizon.
	9	.181	58.2	64.2	56.5	63.3		62.2	61.2	S.W. . .	1	0	Do.
	Noon.	.180	62.2	72.0	59.4	71.4		70.3	69.2	S.W. . .	1	C. 6 . . .	
	3 P. M.	.176	67.0	75.2	62.6	70.2		74.3	73.6	S.W. . .	1	C. 6 . . .	
	6	.174	66.2	67.5	59.9	66.0		68.5	68.1	Westward .	1	C. 2 . . .	
	9	.174	63.4	60.0	55.6	59.0		61.2	61.2	Westward .	1	C. 1 . . .	
	Midn't.	.152	61.3	58.2	54.3	57.2	42.7	58.8	58.8	N.W. . .	1	S. & K. S. 10	Max. temp., 74°.3; min., 50°.0.
9	6 A. M.	.129	60.0	58.0	53.8	56.9		58.3	58.1	Calm . .	0	S. & K. S. 10	
	9	.143	60.0	56.2	53.4	55.2		56.8	56.8	N.W. . .	2	Mist . . .	Slight drizzle.
	Noon.	.142	60.6	66.6	58.3	63.9		66.7	65.8	N.E. . . .	1	K.,K.S.&C.10	
	3 P. M.	.105	62.8	70.0	58 3	69.1		69.8	69.0	S.W. . .	1	K.,S.& C.S.10	
	6	.122	62.7	60.3	55.9	60.1		62.1	61.8	S.W. . .	2	K. & S. 10 .	
	9	.136	60.3	53.2	49.3	52.5		54.3	55.0	S.W. . .	1	S. & K. S. 10	
	Midn't.	.118	58.6	51.3	47.6	50.9	47.0	52.4	52.8	Southward .	Air.	S. & K. S. 10	Late. Max. temp., 69°.8; min., 42°.2.
10	7 A. M.	.104	56.7	49.5	46.6	48.8		50.0	50.6	Calm . .	0	Mist . . .	Rain for day not sufficient to measure.
	9	.124	56.5	51.8	46.6	50.2		52.2	52.6	W.N.W. .	1	S. & K. S. 10	
	Noon.	.140	56.6	53.5	47.4	52.0		53.0	53.4	S.S.W. . .	1	S. & K. S. 10	
	3 P. M.	.142	57.0	52.5	48.1	52.0		52.8	52.7	E. by N. .	1	S. & K. S. 10	
	6	.158	50.6	51.0	46.4	50.4		51.7	51.8	Southward .	1	Rain . .	Light.
	9	.189	55.8	49.1	46.6	48.1		49.8	50.2	N.E. . . .	2	Rain . .	Do.
	Midn't.	.161	54.4	46.1	43.7	45.7	42.8	46.8	47.7	S.W. . .	1	Rain . .	Few drops. Max. temp., 55°.2; min., 47°.7.
11	6 A. M.	.204	53.0	48.8	45.0	49.3		48.2	48.6	N.W. . .	1	K. & K. S. 6	
	9	.210	53.6	51.5	46.6	50.6		52.3	52.3	S. eastward.	1	K. & K. S. 9	
	Noon.	.190	55.6	58.5	49.1	56.5		58.7	58.5	S.E. . . .	1	K. & K. S. 8	
	3 P. M.	.170	57.6	60.8	49 3	59.4		61.4	60.7	S.W. . .	1	K. 2 . . .	
	6	.166	57.3	54.0	46.8	54.0		55.7	55.7	S.W. . .	1	0	K. over Andes.
	9	.176	55.8	48.2	43.2	47.6		49.2	50.2	Calm . .	0	0	
	Midn't.	.135	53.2	43.8	39.5	43.0	38.8	44.3	45.8	N.E. . .	1	C. & C. S. 1	Max. temp., 81°.6; min., 45°.4.
12	6 A. M.	.130	49.8	41.0	38.6	42.8		41.7	43.2	Calm . .	0	0	C. over Andes.
	9	.151	51.8	52.8	46.8	52.5		51.8	51.7	N.E. . .	1	0	
	Noon.	.153	54.8	59.0	48.4	58.3		59.8	59.5	Westward .	2	K. 1 . . .	
	3 P. M.	.152	56.7	61.4	48.8	59.9		62.7	62.2	S.W. . .	3	K. 2 . . .	
	6	.172	57.0	56.2	46.8	55.2		57.1	57.1	S.W. . .	2	K. 7 . . .	
	9	.186	54.4	48.5	44.6	48.1		49.8	50.7	Eastward .	1	K. 1 . . .	
	Midn't.	.188	53.0	45.8	42.6	45.3	36.0	46.3	47.3	N.E. . .	Air.	K. 1 . . .	Late. Max. temp., 63°.3; min., 41°.4.
13	6 A. M.	.262	51.1	51.0	45.9	51.1		48.3	48.8	N.W. . .	Air.	0	Late.
	9	.281	53.2	55.5	48.8	54.7		54.6	54.2	S.W. . .	1	0	
	Noon.	.286	55.7	62.4	51.3	60.8		62.2	62.0	Eastward .	1	0	K. around horizon.
	3 P. M.	.270	58.8	66.6	53.1	64.6		66.4	65.7	S.E. . . .	1	0	K. heavy.
	6	.285	60.0	61.3	50.4	60.6		62 3	62.0	S.W. . .	1	0	
	9	.269	58.0	53.0	47.6	52.2		54.0	54.3	N.E. . . .	Air.	0	
	Midn't.	28.199	56.5	50.5	45.7	49.5	38.0	51.2	51.8	Northward .	Air.	0	Max. temp., 67°.8; min., 43°.2.

OCTOBER, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Register. Max.	Register. Min.	Direction.	Force.		
		Inches.	°	°	°	°	°	°	°				
14	7 A. M.	28.093	53.4	51.2	47.4	56.4		51.8	52.1	N. eastward	Air.	0	
	9	.072	55.8	61.0	51.5	60.3		59.0	58.5	N. eastward	1	0	
	Noon.	.079	60.6	72.7	63.6	70.8		70.2	69.6	S.W. . . .	2	0	
	3 P. M.	.074	62.7	74.7	58.7	72.7		74.2	73.6	S.W. . .	3	0	C. and C. S. to southward.
	6	.087	64.6	65.3	55.6	64.4		66.6	66.0	S. by E. .	1	0	Do. do.
	9	.102	59.5	55.0	48.8	54.3		56.7	56.8	Calm . .	0	0	
	Midn't.	.100	57.0	51.3	47.2	50.6	39.7	52.7	53.5	N.E. . . .	Air.	0	Max. temp., 74°.3; min., 45°.4.
15	7 A. M.	.160	51.9	48 2	45.3	46.6		48.3	48.5	N.E. . . .	2	Fog 10 . .	
	9	.160	53.9	50.8	47.2	49.1		51.0	51.9	Southward .	1	Fog & S. 10	
	Noon.	.194	54.9	52.5	49.1	51.1		52.7	52.8	S.W. . .	1	S. & K. S. 10	
	3 P. M.	.144	56.2	56.7	51.1	55.2		57.1	56.5	S.S.W. . .	1	S. & K. S. 10	
	6	.155	56.8	53.7	50.0	52.9		54.2	54.3	Southward .	1	S. & K. S. 10	
	9	.158	56.6	52.8	49.3	51.8		53.2	53.2	Eastward .	Air.	S. & K. S. 10	
	Midn't.	.145	56.0	50.8	48.0	50.5	41.3	51.4	52.0	N.W. . .	1	S. & K. S. 10	Late. Max. temp., 57°.8; min., 46°.8.
16	6 A. M.	.222	54.7	50.0	46.6	49.1		50.5	51.0	S.W. . .	1	S. & K. S. 10	
	9	.246	55.4	55.4	49.5	54.3		56.2	55.7	N.E. . . .	1	K. & K. S. 6	
	Noon.	.271	57.6	61.8	52.7	60.3		62.0	61.5	S.E. . . .	2	K. 5 . . .	
	3 P. M.	.271	59.5	64.5	53.6	64.1		65.2	64.7	S.W. . .	3	K. 1 . . .	Around horizon.
	6	.286	60.0	58.5	52.0	58.1		60.2	60.0	S.W. . .	1	0	
	9	.290	56.7	51.8	48.4	51.3		53.0	53.6	N.E. . . .	Air.	0	
	Midn't.	.266	55.0	48.8	47.0	48.1	45.2	49.7	50.5	N.W. . .	Air.	0	Max. temp., 65°.3; min., 50°.0.
17	6 A. M.	.207	51.2	51.8	46.5	52.0		49.8	50.1	N.E. . . .	1	0	C. S. to northward; smoky.
	9	.205	54.8	59.2	52.5	57.9		57.8	57.4	Calm . .	0	0	Do. do.
	Noon.	.181	59.3	69.4	55.6	66.8		67.4	66.8	S.S.W. . .	1	C. & C. S. 3	
	3 P. M.	.134	62.3	73.6	56.1	71.2		72.1	71.5	S.W. . .	1	C. & C. S. 5	
	6	.130	64.5	67.5	54.3	66.0		68.0	67.3	S.E. . . .	1	C. & C. S. 7	
	9	.103	61.4	59.9	50.0	59.0		60.7	60.8	Northward .	1	C. & C. S. 5	
	Midn't.	.067	59.5	55.9	48.6	55.4	40.4	56.8	57.2	Northward .	Air.	C. & C. S. 3	Max. temp., 72°.6; min., 45°.2.
18	6 A. M.	.050	55.2	52.5	48.0	52 9		53.6	53.7	N. westward	1	C. & C. K. 7	
	9	.092	59.8	66.2	55.6	64.9		64.1	63.5	S.W. . .	2	C. & C. K. 7	
	Noon.	.103	61.6	70.4	56.5	69.3		70.0	69.6	S.W. . .	2	C. 2 . . .	
	3 P. M.	.068	64.8	69.5	56.5	68.4		70.3	69.8	S.W. . .	3	C. & C. K. 2	
	6	.070	61.9	58.7	53.1	58.3		69.5	60.3	S.W. . .	4	S. & K. S. 9	
	9	.084	60.8	54.3	50.9	53.8		55.5	56.0	Eastward .	1	S. & K. S. 10	
	Midn't.	.073	59.2	52.5	50.4	52.0	44.3	53.6	54.0	N. westward	1	Rain . . .	Very slight. Max. temp., 71°.5; min., 50°.7.
19	6 A. M.	.118	58.0	52.2	50.2	51.5		52.8	53.0	N.W. . .	1	Rain . . .	Drizzling.
	9	.141	55.3	55.0	50.9	52.9		55.0	55.1	S.W. . .	2	K.S.& N.S.10	Occasional rain during the day.
	Noon.	.186	55.8	55.0	49.3	53.6		55.2	54.6	S.E. . . .	2	S. & K. S. 10	
	3 P. M.	.186	57.7	55.0	49.3	54.0		55.7	55.6	S.S.W. . .	2	S. & K. S. 10	
	6	.200	57.4	51.7	48.4	51.1		52.4	52.3	S.E. . . .	1	Rain . . .	
	9	.226	57.0	50.7	47.4	50.2		51.6	52.2	E.N.E. . .	Air.	S. & K. S. 8	Quantity of rain, 0.287 *in.*
	Midn't.	.182	56.0	47.8	45.5	47.6	45.0	49.1	49.8	Calm . .	0	S. & C. S. 3	Late. Max. temp., 60°.2; min., 49°.0.
20	6 A. M.	.184	53.7	48.3	45.9	48.0		49.0	50.5	Calm . .	0	S. & K. S. 9	
	9	.210	55.5	61.5	52.5	59.0		60.0	59.7	W.N.W. .	1	S. & K. S. 8	
	Noon.	.228	57.7	60.5	51.5	59.2		61.7	61.2	S.W. . .	3	K. & K. S. 9	
	3 P. M.	.196	59.3	63.0	53.8	62.0		63.8	63.2	S.W. . .	3	K. & K. S. 9	
	6	.230	59.7	58.7	51.1	56.9		59.8	59.6	S.E. . . .	2	K. & K. S. 4	
	9	.230	58.5	52.2	48.1	51.8		53.3	54.0	E.N.E. . .	Air.	0	[min., 47°.0.
	Midn't.	28.226	56.6	50.0	46.8	49.3	42.3	50.8	51.5	Northward .	1	0	S. to northward. Max. temp., 64°.3;

OCTOBER, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Max.	Min.	Direction.	Force.		
		Inches.	°	°	°	°	°	°	°				
21	7 A. M.	28.287	54.3	55.1	50.2	55.9		53.7	53.6	N.E. . . .	1	S. & K. S. 2	
	9	.303	56.5	58.8	52.0	57.6		58.3	57.8	N.W. . .	2	K. 4 . . .	
	Noon.	.294	60.0	66.5	55.2	66.0		66.2	65.7	S.E. . . .	1	0	K. around horizon.
	3 P. M.	.266	61.8	69.5	57.4	68.7		69.3	68.6	S.W. . .	1	0	Do. do.
	6	.285	62.4	62.5	55.6	62.0		64.6	63.6	S.W. by W.	2	0	K. over Andes.
	9	.299	60.7	55.6	52.0	54.9		56.8	57.3	Calm . .	0	0	
	Midn't.	.248	59.0	51.0	48.6	50.4	42.2	52.7	53.2	Calm . .	0	0	Max. temp., 71°.3; min., 46°.6.
22	6 A. M.	.230	56.0	52.3	49.1	54.3		53.2	54.3	Eastward .	Air.	0	
	9	.242	58.0	61.5	55.6	61.2		60.8	60.2	Westward .	1	K. 1 . . .	
	Noon.	.226	61.0	69.5	57.4	68.0		67.8	67.2	S.E. . . .	1	0	
	3 P. M.	.191	64.3	75.0	58.1	73.6		73.2	72.3	S.W. . .	2	0	S. to southward.
	6	.190	64.7	69.5	54.9	68.7		70.2	69.5	S.W. . .	2	0	
	9	.224	62.8	60.0	53.6	59.4		61.2	61.6	N.E. . .	Air.	0	
	Midn't.	.214	61.4	56.3	50.9	55.9	43.4	57.3	57.4	N.N.W. .	1	0	Max. temp., 73°.7; min., 48°.0.
23	6 A. M.	.198	58.8	63.0	55.6	64.4		58.8	59.5	Calm . .	0	0	Late. Thermometer boxes in the sun.
	9	.201	61.3	66.0	57.4	65.5		65.2	64.7	S.E. . . .	1	0	
	Noon.	.200	66.4	75.0	58.3	74.5		73.4	73.2	S.W. . .	1	C. 2 . . .	
	3 P. M.	.192	67.8	79.0	61.2	77.0		76.4	75.7	S.W. . .	2	C. & C. S. 3	
	6	.214	69.4	72.5	59.2	71.0		72.7	72.3	S.W. . .	2	S. & K. S. 5	
	9	.229	65.7	63.3	55.4	62.0		64.3	64.2	Calm . .	0	C. & C. S. 1	
	Midn't.	.213	63.7	59.8	53.8	58.5	46.6	60.7	61.0	N.E. . . .	1	0	Max. temp., 76°.8; min., 52°.0.
*24	6 A. M.	.170	60.0	60.0	54.7	60.3		58.7	59.0	S.E. . . .	1	0	C. to southward.
	9	.174	63.2	69.1	59.7	69.1		67.2	66.3	S. westward	1	0	Smoky.
	Noon.	.200	69.1	77.5	62.8	76.5		76.0	75.4	S.W. . .	2	0	
	3 P. M.	.186	73.2	80.5	64.9	79.3		79.4	79.2	S.W. . .	1	0	C. and K. around horizon.
	6	.184	70.8	71.0	59.2	70.0		72.2	71.7	S.W. . .	2	C. & C. S. 1	Do. do.
	9	.160	67 2	63.5	55.4	62.8		63.6	63.2	S.W. . .	1	C. & C. S. 1	
	Midn't.	.146	64.2	58.5	52.0	57.4	49.2	58.2	57.8	S.W. . .	1	0	Max. temp., 79°.8; min., 52°.0.
25	6 A. M.	.145	60.7	56.3	51.3	54.7		56.3	56.2	W.S.W. .	1	0	Late.
	9	.152	61.7	67.4	57.4	65.7		70.2	70.2	S.W. . .	1	0	
	Noon.	.170	64.8	71.0	60.3	69.8		70.6	69.7	S.W. . .	2	0	
	3 P. M.	.174	68.0	69.2	60.0	68.6		70.5	70.0	S.W. . .	5	K. 2 . . .	To eastward and to westward.
	6	.182	62.1	57.2	52.7	57.2		59.3	59.7	S.W. . .	3	S. & K. S. 4	
	9	.214	62.0	58.5	52.5	56.7		59.6	59.0	S.W. . .	2	S. & K. S. 10	
	Midn't.	.180	61.7	58.3	53.1	56.9	48.5	58.5	58.2	S.W. . .	3	S. & K. S. 10	Max. temp., 71°.7; min., 52°.1.
†26	6 A. M.	.193	59.7	57.3	52.9	55.6		57.2	55.0	Calm . .	0	S. & K. S. 10	Late.
	9	.182	60.3	65.7	57.2	62.4		66.3	67.0	N'd and W'd	1	K. & K. S. 10	
	Noon.	.188	62.8	66.8	59.2	65.7		67.4	67.0	W.S.W. .	2	0	K. and K. S. flying about.
	3 P. M.	.180	64.3	64.8	55.9	63.9		66.5	66.0	W.S.W. .	3	K. 1 . . .	Over Cordilleras.
	6	.182	63.8	61.1	54.9	60.6		63.0	62.8	W. . . .	2	K. 1 . . .	Do.
	9	.192	60.5	56.2	52.0	56.1		57.5	57.2	W.S.W. .	3	K. & S. 10 .	
	Midn't.	28.170	61.1	54.4	52.7	54.7	50.5	56.3	56.4	Northward .	Airs.	K. & S. 10 .	Max. temp., 68°.5; min., 55°.0.

* At 6 P. M. position of thermometers changed to north wall of the house, on account of the sun in the morning.

† Quite a sharp earthquake at 7h. 16m. P. M., accompanied with much noise; the direction of the shock apparently from the northward.

J. M. G.

OCTOBER, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register.			Direction.	Force.		
							Sky.	Max.	Min.				
		Inches.	°	°	°	°	°	°	°				
27	6 A. M.												Much lightning (summer) over the Andes all the evening. J. M. G.
	9	28.196	59.8	59.0	53.4	58.5		62.0	61.2	W.N.W. .	Airs.	K. & S. 10 .	
	Noon.	.224	61.0	60.4	55.4	59.9		60.8	61.3	W.S.W. .	1	K. & K. S. 10	
	3 P. M.	.204	62.6	65.0	55.4	63.7		65.8	65.0	S.W. . .	2	K. & S. 5 .	
	6	.186	64.0	63.7	55.4	62.6		64.5	63.9	S.W. . .	2	K. & K. S. 7	
	9	.178	62.0	54.7	51.3	54.7		56.5	56.2	N.W. . .	1	C. & S. 2 .	West horizon.
	Midn't.	.160	60.1	52.7	49.5	52.9	48.0	54.0	54.0	N.W. . .	2	C. & S. 2 .	Do. Max. temp., 69°.5; min., 53°.4.
28	6 A. M.												
	9	.180	59.9	63.5	54.9	61.0		60.5	60.9	N.W. . .	1	K. & C. S. 10	
	Noon.	.184	62.2	66.3	56.1	65.1		66.3	65.5	S.W. . .	2	K. & S. 10 .	
	3 P. M.	.180	63.7	69.0	56.3	66.4		68.7	68.6	S.W. . .	4	S. & K. S. 9	
	6	.204	63.0	62.8	53.8	62.0		63.7	63.5	W.S.W. .	3	K. S. & K. 6	
	9	.223	60.8	55.5	51.1	54.7		57.2	57.3	E.N.E . .	1	S. & C. S. 1	
	Midn't.	.196	58.7	51.7	48.1	51.1	46.0	53.7	54.2	N.W. . .	3	0	Max. temp., 70°.8; min., 48°.3.
29	6 A. M.	.191	57.0	53.5	49.1	52.2		53.0	53.3	N.W. . .	Air.	S. & K. S. 10	
	9	.190	58.8	61.5	58.6	60.1		61.8	61.0	N.W. . .	1	K. 1 . . .	
	Noon.	.197	61.5	68.2	54.0	66.6		68.6	67.6	S.E. . . .	1	0	K. over Andes.
	3 P. M.	.189	64.5	72.7	57.9	71.6		73.0	71.8	W.N.W. .	3	0	Do.
	6	.204	66.1	66.5	54.7	65.5		67.5	67.2	S.W. . .	2	C. K. 1 . .	
	9	.233	62.2	57.5	51.8	57.4		58.5	59.4	Calm . .	0	C.S.& S.2 .	
	Midn't.	.220	60.6	54.5	49.5	54.3	45.4	55.0	56.0	N.W. . .	2	S. & C. S. 4	Max. temp., 73°.8; min., 48°.3.
30	6 A. M.												
	9	.225	59.3	61.3	52.9	60.6		61.4	60.7	W.N.W. .	1	0	
	Noon.	.217	61.7	68.3	56.3	66.8		67.4	66 7	S.W. . .	2	0	K. over Andes.
	3 P. M.	.175	64.3	72.3	56.9	70.8		71.7	70.7	S.W. . .	2	0	
	6	.180	66.5	67.5	55.8	66.0		68.3	68.0	S.W. . .	1	0	
	9	.204	62.3	57.3	51.5	56.7		58.7	59.2	Calm . .	0	0	
	Midn't.	.142	60.0	53.0	48.4	52.2	44.6	51.4	51.3	N'd and E'd	Airs.	0	Taken at 12h. 40m. Max. temp., 71°.8; min., 47°.0.
31	7 A. M.	.106	57.7	57.0	50.9	56.3		56.7	56.8	Calm . .	0	0	Smoky.
	9	.087	60.8	67.8	56.9	66.6		70.0	69.7	S.W. . .	2	0	Do. Late.
	Noon.	.068	65.7	74 0	58.7	72.9		72.6	72.2	S.W. . .	2	0	
	3 P. M.	.053	70.8	77.7	60.1	76.3		76.7	76.2	S.W. . .	2	0	K. over Andes.
	6	.064	70 0	71.6	57.4	70.0		72.2	71.7	S.W. . .	2	0	
	9	.079	65.8	61.5	53.1	61.2		63.3	63.4	N.E. . . .	1	0	
	Midn't.	28.071	64.4	57.9	52.5	57.6	44.8	59.6	59.7	N.E. . . .	1	C. 1 . . .	Max. temp., 77°.0; min., 48°.7.

NOVEMBER, 1851.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register.			Direction.	Force.		
							Sky.	Max.	Min.				
		Inches.	°	°	°	°	°	°	°				
1	6 A. M.	28.157	61.7	57.1	51.5	56.3		56.0	56.0	Eastward .	Air.	K. & K. S. 8	
	9	.180	63.0	68 0	56.7	66.8		71.2	71.0	W.S.W. .	1	S. & C. S. 2	
	Noon.	.173	66.5	71.6	59.2	70.8		70.7	70.2	S.W. . .	3	0	K. over Andes.
	3 P. M.	.157	67.7	72.3	59 4	71.2		72.8	72.5	S.W. . .	4	0	Do. do.
	6	.194	67.0	64.8	56.7	64.4		66.6	66.4	S.W. . .	1	0	
	9	.198	62.8	57.8	52.7	57.4		59.3	59.2	S.E. . . .	Air.	0	
	Midn't.	.154	61.6	55.5	51.8	55.4	48.7	57.0	57.1	Calm . .	0	0	Max. temp., 73°.6; min., 52.°6.
2	6 A. M.	.154	59.3	57.2	53.1	55.9		57.0	57.0	N.E. . . .	Air.	K.,K.S.&C. 8	Late.
	9	.169	62.0	66 7	58.7	65.3		66.2	65.7	Calm . .	0	K. & C. K. 6	
	Noon.	.169	65.7	75.0	61.7	72.7		72.7	71.8	S.W. . .	1	K.S.&C.K. 7	
	3 P. M.	.160	69.6	76 2	60.6	74.3		75.3	74.6	S.W. . .	2	S. & K. S. 10	Clear to westward.
	6	.172	69.5	70.2	59.4	68.0		71.5	70.8	S.W. . .	3	K. & K. S. 9	
	9	.204	65.4	58.3	53.8	57.9		60.2	60.2	N.E. . . .	1	K. & K. S. 9	
	Midn't.	.170	62.6	54.4	50.6	54.0	47.8	55.8	56.5	Calm . .	0	K. & C. K. 6	Taken at 1 A. M. Max. temp., 75°.3; min., 50°.3.
3	7 A. M.	.223	59.2	56.4	51.3	54.5		57.2	57.0	N.E. . . .	Air.	Fog 10 . .	
	9	.240	60.7	63.5	55.4	61.5		62.5	62.6	S.E. . . .	1	S. & K. S. 10	
	Noon.	.232	63.3	67.3	58.7	66.2		67.0	66.3	S.W. . .	2	K. 1 . . .	Around mountains.
	3 P. M.	.202	67.5	71.5	60.6	70.5		71.7	71.0	S.W. . .	3	K. & S. 1 .	Do.
	6	.211	67.2	66.0	57.9	65.3		67.6	67.2	S.W. . .	1	K. & K. S. 1	Do.
	9	.233	63.1	57.8	53.6	57.2		59.5	59.6	Eastward .	Air.	S. & C. S. 2	
	Midn't.	.218	61.2	55.0	51.5	53.8	47.3	56.2	56.7	N.W. . .	1	K. & K. S. 9	Taken at 2 A. M. Max. temp., 71°.7; min., 50°.3.
4	6 A. M.	.242	59.6	56.8	53.1	55.6		57.2	57.0	Westward .	Air.	S. & K. S. 9	Clear to N.W.
	9	.252	62.0	71.0	60.3	68.7		73.0	73.1	S.W. . .	1	K. S. & K. 10	Clear to northward.
	Noon.	.246	64.9	70.5	59.7	68 4		70 7	70.0	S.W. . .	1	S. & K. S. 10	
	3 P. M.	.246	65.5	66.4	58.1	64.6		66.8	66.5	S.W. . .	1	S. & K. S. 10	
	6	.238	63.6	61.5	55.4	60.8		62.7	62.3	S.W. . .	1	S. & K. S. 10	
	9	.234	62.0	59.0	54.9	59.0		60.2	60.0	Calm . .	0	S. & K. S. 10	
	Midn't.	.186	61.5	60.2	53 6	59.9	51.0	60.5	60.0	N.W. . .	4	K. & K. S. 10	Squally. Max. temp., 76°.0; min., 52°.5.
5	7 A. M.	.189	63.1	60.4	52.7	59.4		60.8		Calm . .	0	0	
	9	.188	63.2	65.5	56.3	65.3		65.4	64.4	W.N.W. .	1	0	K. and C. to westward.
	Noon.	.153	65.7	72.7	57.9	71.8		72.5	71.7	S.W. . .	1	C. & K. 5 .	C. thin.
	3 P. M.	.092	67.8	77.9	62.6	76.5		77.8	76.8	S.W. . .	2	K.,C.S.&C. 6	
	6	.067	69.6	71.2	59.4	69.8		72.0	71.5	S.W. . .	1	S. & K.S. 10	
	9	.100	64.8	59.0	52.5	58.3		59.8	60.7	S.W. . .	6	S. & K. S. 10	Halo around moon.
	Midn't.	.100	63.7	57.0	51.3	57.2	50.8	57.7	58.0	S.S.E. . .	2	S.C.S.&K.S. 10	Max. temp., 77°.8; min., 53°.4.
6	6 A. M.	060	61.8	54.9	49.8	54.0		55.2	54.8	Westward .	1	S. & K. S. 10	
	9	.095	60.2	64.5	55.4	62.4		66.6	66.5	S.W. . .	1	S. & K. S. 10	
	Noon.	.126	61.6	63.2	53.6	61.7		66.4	66.8	S.W. . .	2	S. & K. S. 10	Slight rain at about 2h. 30m. P. M.
	3 P. M.	.089	62.0	63.0	53.1	61.5		64.2	64.8	S.W. . .	1	S. & K. S. 10	
	6	.154	61.8	58.5	51.1	57.9		58.8	59.7	S.W. . .	3	S. & K. S. 10	
	9	.259	61.0	55.5	50.6	54 7		56.3	56.0	S.W. . .	2	S. & K. S. 10	
	Midn't.	.253	60.0	53.4	49.1	52.5	49.5	53.0	53.0	Westward .	1	K. & K. S. 6	Max. temp., 68°.2; min., 52°.5.
7	6 A. M.	.246	57.7	52.0	48.1	51.1		51.0	51.2	N.W. . .	1	S. & C. S. 4	Late.
	9	.269	59.2	63.6	53.6	62.0		67.0	66.8	S.W. . .	1	S. & K. S. 10	
	Noon.	.256	61.2	71.5	56.7	69.5		77.0	77.3	W. . . .	2	S. & K. S. 10	
	3 P. M.	.248	62.7	70.5	56.9	68.0		73.3	73.2	W.S.W. .	1	S. & K. S. 10	
	6	.255	62.7	62.5	54.7	61.0		64.0	64.7	S.W. . .	1	C.K.&K.S. 9	
	9	.280	59.9	55.0	49.5	54.0		55.2	55.0	S.W. . .	4	C.S.&K.S. 7	
	Midn't.	28.272	56.8	53.3	48.4	52.2	43.2	52.7	52.3	Calm . .	0	S. & K. S. 9	Max. temp., 78°.2; min., 45°.0.

NOVEMBER, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Register. Max.	Register. Min.	Direction.	Force.		
		Inches.	°	°	°	°	°	°	°				
8	6 A. M.	28.282	58.2	55.0	49.1	53.8		55 6	55.3	S.E. . . .	Air.	S. & K. S. 3	
	9	.260	59.7	63.0	53.6	61.2		64.7	65.0	S.W. . .	1	K. 1 . . .	Scattered.
	Noon.	.226	62.0	67.5	54.0	66.4		67.0	66.1	S.W. . .	1	C. K. 1 . .	
	3 P. M.	.178	64.2	72.3	57.4	71 4		72.2	72.1	S.W. . .	3	K.,K.S. &C. 8	
	6	.167	65.6	66.5	55.4	65.3		67.5	67.0	S.W. . .	1	S. & K. S. 9	
	9	.154	62 5	59.0	50.9	58.5		60.2	60.3	S.W. by W.	1	S. & K. S. 10	
	Midn't.	.125	61.2	54.0	48.4	53.6	46.4	54.8	55.0	S.W. . .	2	S. & K. S. 10	Max. temp., 72°.5; min., 52°.2.
9	7 A. M.	.096	58 0	55.0	49.5	54.3		54.7	55.2	N.E. . . .	1	Rain . . .	Slight.
	9	.129	58.3	92.8	48.4	52.0		54.0	53.7	S W. . .	2	Rain . . .	Hard.
	Noon.	.104	59.4	61.2	53.6	59.7		63.1	63.8	Calm . .	0	Rain . . .	
	3 P. M.	.064	60.7	60.7	52.7	59.9		64 2	64.7	S.S.E. . .	2	Rain . . .	Light.
	6	.104	59.7	54.5	51.5	54.0		55.2	54.6	S.E. . . .	1	Rain . . .	
	9	.110	58.0	50.4	48.1	50.0		50.2	50 2	Calm . .	0	K. & K. S. 5	Quantity of rain during the day, 1.517 in.
	Midn't.	.080	56.5	46.4	45.5	46.2	45.5	46.0	46.2	N.W. . .	1	K.C.K.& K.S.8	Late; fog rising to northward. Max. temp., 70°.8; min., 46°.0.
10	6 A. M.	.054	55.3	49.5	47.2	48.6		49.0	49.5	N.W. . .	1	S. & K. S. 10	Fog to northward.
	9	.054	56.5	59.1	52.9	56.5		60.0	60.0	W. . . .	1	Rain . . .	Passing shower.
	Noon.	.062	57.8	65.0	54.0	59.7		66.5	66.2	S.E. . . .	1	K. S. 10 .	
	3 P. M.	.054	59.3	57.2	52.2	55.9		58.5	58.2	S.W. . .	2	Rain . . .	
	6	.105	59.0	53.0	49.1	52.5		54.0	54.0	S.W. . .	3	K. & K. S. 7	
	9	.154	57.6	51.0	47.4	50.6		51.8	52.0	S.W. . .	1	S. & K. S. 10	Quantity of rain during the day, 0.108 in.
	Midn't.	.150	56.4	48.8	46.2	48.8	44.8	49.8	50.0	N.E. . . .	Air.	K. & K. S. 9	Max. temp., 69°.2; min., 45°.3.
11	7 A. M.	.174	55.4	51.4	47.4	50.2		51.2	51.2	W. . . .	1	C. & K. 5 .	
	9	.186	56.0	60.3	52.0	57.9		63.8	64.0	W. . . .	1	K. & K. S. 9	
	Noon.	.194	57.8	60.5	51.5	59.7		61.1	60.0	S E. . . .	1	K. & K. S. 6	
	3 P. M.	.180	59.8	65.0	53.1	64.4		65.7	64.6	S.W. . .	2	K. & K. S. 4	
	6	.204	60.0	58.9	50.4	57.6		59.8	59.4	S.W. . .	3	K. & K. S. 3	
	9	.254	57.6	51.0	46.4	50.0		51.8	52.2	Eastward .	1	S. & K. S. 3	
	Midn't.	.294	55.5	47.0	44.1	45.9	43.7	48.0	48.8	Calm . .	0	C. & K. 1 .	Taken at 1h. 30m. Max. temp., 65°.5; min., 47°.0.
12	6 A. M.	.243	53.7	47.0	44.1	46.4		45.3	45.7	Calm . .	0	0	Snow very low on the Andes.
	9	.250	55.7	57.5	49.5	56.1		59.0	58.7	Calm . .	0	K. 1 . . .	
	Noon.	.220	58.0	65 0	54.0	63.9		67.2	66.7	S.W. . .	1	C. S. 7 . .	K. around horizon.
	3 P. M.	.189	60.4	69.2	53.1	67.5		68.1	68.1	S.S.E. . .	1	0	Do.
	6	.191	62.4	66.1	52.9	64.9		65.7	66.5	S.W. . .	2	0	K. over Andes.
	9	.210	59.6	54.9	50.0	54.3		56.5	56.3	Calm . .	0	0	
	Midn't.	.189	57.0	52.5	48.8	52.5	40.2	53.7	53.8	N.N.W. . .	1	C.K. & C. S. 6	Max. temp., 68°.5; min., 41°.4.
13	6 A. M.	.191	55.1	51.0	47.2	49.8		50.0	50.2	N.E. . . .	Air.	C.S.C.K.&S.9	At 11h. 0m. 17s. A. M., an earthquake shock.
	9	.204	57.0	63.1	54.9	60.6		63.8	63.8	Northward .	Airs.	C. & S. 9 .	
	Noon.	.166	61 0	69.0	56.3	65.7		69.0	67.5	E.N.E. . .	3	K. 7 . . .	Clearest to the westward.
	3 P. M.	.140	61.8	70.8	56 5	69.8		70.6	69.0	W.S.W. .	2	K. 3 . . .	
	6	.140	62.5	67.7	54.7	66.6		68.2	67.5	W.S.W. .	2	0	K. over Andes.
	9	.180	61.2	56.7	51.1	56.3		58 0	58.2	W. . . .	1	0	
	Midn't.	.166	59.8	54.4	49.5	54.0	44.8	55.0	55.2	N.N.E. . .	Air.	0	Do. Max. temp., 71°.0. min., 49°.0.
14	6 A. M.	.161	57.0	52.8	48.1	52.0		52.0	51.9	Calm . .	0	0	C. and C. S. to southeast.
	9	.141	58.8	62.2	53.6	61.0		62.5	61.4	E.S.E. . .	1	0	
	Noon.	.131	61.5	69.3	57.2	67.7		69.2	68.3	S.W. . .	1	0	K. around horizon.
	3 P. M.	.101	64.0	73.7	54.9	72.0		72.7	71.6	S.W. . .	2	K. & K. S. 1	Do.
	6	.096	64.3	70.7	54.5	69.1		71.0	70.2	W. . . .	1	0	K. over Andes.
	9	.136	62.6	59.3	52.2	58.5		60 2	60.0	Calm .	0	0	
	Midn't.	28.119	60.3	55.5	50.4	55.4	46.4	56.5	56.6	N.W. . .	2	0	Max. temp., 73°.3; min., 46°.7.

NOVEMBER, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Standard.	Wet.	Dry.	Register. Sky.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°	°	°				
15°	6 A.M.	28.139	56.9	56.1	49.8	55.2		54.8	54.8	E.S.E. . .	1	0	Few C. to southeastward.
	9	.136	60.6	65.5	55.4	64.4		65.2	64.2	W.S.W. .	1	0	
	Noon.	.127	65.0	73.5	58.3	72.0		72.0	70.7	S.W. . .	3	0	K. around horizon.
	3 P. M.	.106	66.0	76.7	58.3	74.7		75.0	73.8	S.E. . . .	1	0	Do.
	6	.106	66.3	72.5	58.1	71.6		72.8	72.3	S.W. . .	1	0	Do.
	9	.130	63.0	59.5	52.9	59.2		61.5	61.0	N.E. . . .	1	0	
	Midn't.	.088	61.8	57.5	51.8	57.6	46 2	59.0	59.0	N.E. . . .	1	0	Max. temp., 75°.5; min., 48°.0.
16	6 A.M.	.079	59.0	59.0	51.5	57.2		58.8	58.5	Calm . .	0	C.S.CK.&.S.7	Late.
	9	.106	61.5	65.7	54.9	63.9		67.6	67.1	S.W. . .	1	C.K.&K.S.7	
	Noon.	.108	64.5	72 5	60.1	71.4		72.3	71.3	W.S.W. .	3	0	C. K. over Andes.
	3 P. M.												
	6												
	9												
	Midn't.												
17	6 A.M.	.167	60.3	57.6		56.9		56.7	56.6	N.E. . . .	Air.	0	Late. Min. wet, 46°.3.
	9	.166	62.7	67.7	59.0	66.8		67.3	66.2	S.W. . .	1	0	
	Noon.	.154	65.3	75.0	61.2	72.9		73.2	72.2	E.S.E. . .	1	0	
	3 P. M.	.135	68.2	79.7	61.5	77.7		78.3	77.7	S.W. . .	2	0	K. over Andes.
	6	.150	71.0	75.5	60.7	74.0		75.8	75.2	S.W. . .	1	0	Do.
	9	.183	67.2	64.4	56.3	63.5		66.0	65.2	N.E. . . .	2	0	
	Midn't.	.176	66.0	61.1	56.7	61.0		62.8	62.7	N.W. . .	1	0	Max. temp., 78°.8; min., 49°.7.
18	6 A.M.	.152	63.0	58.6	53.6	58.1		57.3	57 0	Calm . .	0	0	Min. wet, 51°.3.
	9	.157	65.5	71.5	60.6	69.8		71.4	70.6	Calm . .	0	0	
	Noon.	.144	68.3	78 3	62.2	77.0		75.8	74.8	N.E. . . .	1	0	
	3 P. M.	.129	71.0	82.9	63.7	81.3		81.2	80.7	S.W. . .	1	0	Few K. over Andes.
	6	.133	71.3	77.9	61.7	76.0		78.0	77.5	S.W. . .	1	0	
	9	.165	68.6	66.3	56.8	65.5		67.7	67.2	N.E. . . .	1	0	
	Midn't.	.156	67.4	64.2	56.7	64.1		65.5	65.3	N.W. . .	1	0	Max. temp., 81°.5; min., 53°.3.
19	6 A.M.	.098	62.7	59.4	53 8	58.5		58.0	57.6	Calm . .	0	0	Min. wet, 52°.0.
	9	.123	67.0	74.4	62.0	72.9		74.8	74 3	Westward .	1	0	C. & C. S. to northward.
	Noon.	.124	72.5	81.7	64.6	80.0		79.7	79.2	S.E. . . .	1	0	C. & C. S. to eastward.
	3 P. M.	.106	74 5	85.3	64.7	82.8		83.2	83.0	S.W. . .	2	0	
	6	.125	74.7	78.8	63.3	76.2		78.8	78.7	S.W. . .	1	0	
	9	.147	69.6	65.0	54.5	64.6		66.7	66.3	N.E. . . .	1	0	
	Midn't.	.134	65.1	61.0	54.3	61.5		62.8	63.0	N.E. . . .	Air.	0	Max. temp., 83°.3; min., 54°.8.
20	6 A.M.	.095	63.1	59.5	51.8	58.3		58.3	58.0	Calm . .	0	C. & C. S. 9	Min. wet., 49°.3.
	9	.089	65.8	70.1	58.6	69.8		70.3	69.2	S.W. . .	1	C. & C. S. 9	
	Noon.	.085	69.3	79.2	63.8	78.5		78.2	77.5	S.W. . .	3	C. & C. S. 10	
	3 P. M.	.080	71 2	78.3	61.6	77.0		78.2	77.5	S.W. . .	3	S. 10 . . .	
	6	.092	70.3	66.7	56.3	65.3		68.2	67.6	S.W. . .	2	S. 10 . . .	Clear to southward.
	9	.104	65.7	60.2	51.3	59.4		62.0	61.3	E.S.E. . .	1	S. & C. S. 10	
	Midn't.	28.104	63.5	57.7	50.2	56.9		59.6	59 2	Southward .	1	S. 10 . .	Max. temp., 78°.8; min., 53°.8.

* At 1h. 19m. 35s. A. M., a smart earthquake which lasted seven seconds. The apparent motion of the moon to which attention was directed at the time was from north to south, through quite four minutes of arc. No other movement was perceived in the field of the telescope. There was considerable noise; but the direction from which it came was not distinguishable on account of wind through the door of the observatory.

J. M. G.

NOVEMBER, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Standard.	Dry.	Register. Wet.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°	°				
21	6 A. M.	28.166	59.7	57.7	56.1	50.8	58.0	57.6	S.W. . .	3	S. & K. S. 9	Clear to westward. Min. wet, 48°.7.
	9	.190	61.9	61.0	59.2	53.4	61.0	60.0	Calm . .	0	S. & K. S. 10	Do.
	Noon.	.179	64.8	67.5	66.6	56.4	68.0	67.0	S.W. . .	2	C. & C. K. 4	
	3 P. M.	.147	68.0	73.0	71.8	58.4	73.2	72.3	S.W. . .	2	C. & C. K. 7	
	6	.136	68.3	68.7	67.1	57.4	69.2	68.7	W.S.W. .	2	K. & C. K. 4	
	9	.171	64 3	57.3	56.7	53.6	59.7	59.3	E. . . .	1	K. & S. 1 .	Around horizon.
	Midn't.	.148	63.3	55.0	54.9	52.8	56.8	57.0	Calm . .	0	S. 9 . . .	Max. temp., 73°.3; min., 54°.3.
*22	6 A. M.											
	9	.134	63.8	64.3	63.0	56.8	65.5	65.7	S.W. . .	1	K. S. 10 . .	Min. wet, 51°.5.
	Noon.	.132	65.7	73 0	66.2	60.7	72.0	71.3	S. eastward?	2	C. K. 9 . .	
	3 P. M.	.107	67.2	71.0	70.0	59.5	72.3	71.4	S.W. . .	1	K. & K. S. 6	
	6	.086	68.3	68.8	67.3	59.0	69.6	69.0	S.W. . .	3	K. & K. S. 1	Over mountains.
	9	.116	63.7	58.5	57.9	53.2	60.3	60.2	Southward .	1	K. & K. S. 7	
	Midn't.	.104	62.7	56.0	55.9	51.8	57.8	57.3	Eastward .	1	S. & K. S. 10	Max. temp., 73°.6; min., 55°.0.
23	6 A. M.	.095	62.0	59.4	57.2	53.8	59.5	59.3	N. westward	Air.	C.K.S.&C.S.9	Min. wet, 49°.8.
	9	.095	62.8	62.6	61.2	54.8	64.0	63.2	S.E. . . .	1	C.S. & K.S.8	
	Noon.	.090	65.8	73.0	69.3	58.8	71.0	70.0	W.S.W. .	2	S. & K. S. 10	
	3 P. M.	.084	66.5	70.5	67.7	56.7	69.8	69.0	S.W. . .	3	S. & K. S. 10	Clear to northward.
	6	.082	66.0	64.6	63.5	55.7	65.8	65.2	S.W. . .	1	S. & K. S. 6	
	9	.086	62.8	57.0	56.5	51.5	59.2	59.0	N.W. . .	1	S. & K. S. 9	
	Midn't.	.080	62.6	54.0	53.6	50.5	56.0	56.0	Calm . .	0	S. & K. S. 9	Max. temp., 71°.2; min., 55°.7.
24	6 A. M.	.106	61.6	57.0	56.7	52.3	58.2	58.3	Westward .	1	K. & C. K. 4	Min. wet, 49°.0.
	9	.095	62.7	64.5	64.1	56.3	64.7	63.6	S.W. . .	1	0	K. over Andes.
	Noon.	.084	65.7	72.6	71.4	59.8	71.7	70.6	S.W. . .	1	0	K. around horizon.
	3 P. M.	.059	68.0	74.7	73.2	60.4	74.4	73.3	S.W. . .	4 & 5	K. & C. 1 .	Do.
	6	.064	68.2	69.5	68.4	58.0	70.9	70.2	S.W. . .	1	0	C. and K. around horizon.
	9	.096	63.9	58.0	57.4	53.2	59.8	59.8	S.W. . .	1	0	Do. do.
	Midn't.	.094	62.8	54.0	53.8	50.7	56.0	56.0	N.E. . . .	1	0	Do. do. Max. temp., 74°.3; min., 54°.6.
25	6 A. M.	.092	61.2	56 6	55.9	51.2	55.2	55.0	Southward .	Air.	C. 3 . . .	Late; atmosphere smoky. Min. wet, 46°.3.
	9	.088	62.3	64 0	63.3	55.8	64.8	63.8	S.W. . .	2	C. 3 . . .	
	Noon.	.077	65.7	73.3	72.7	61.5	72.5	71.6	S.W. . .	1	C. 6 . . .	
	3 P. M.	.069	68.2	77.2	76.0	62.0	75.8	74.7	S.S.W. . .	3	C. 5 . . .	K. over Andes.
	6	.074	68.8	71.9	58.5	59.7	72.8	72.2	S.W. . .	1	C. 4 . . .	Frequent lightning over the Andes during the evening.
	9	.114	64.9	59.9	59.7	53.0	61.8	61.3	N.E. . . .	1	0	
	Midn't.	.121	64.7	57.7	57.6	52.8	59.4	59.2	N.N.W. .	Air.	0	Max. temp., 76°.3; min., 48°.8. Midnight observations taken at 1 A. M.
26	6 A. M.	.129	62.5	58.4	57.4	52.6	57.7	57.2	Calm . .	0	C.S. & K.S.10	Min. wet, 52°.2.
	9	.125	63.6	66.3	66.2	57.8	67.1	66.0	S.W. . .	1	C.K.C.&K.S.6	
	Noon.	.120	67.5	73.8	72.9	62.8	73.7	72.7	S.W. . .	1	C. & C. K. 1	
	3 P. M.	.095	69.3	79.4	78.3	63 2	77.8	77.0	W.S.W. .	3	K.S.C.& K.S 6	
	6	.089	72.7	77.0	75.6	60.4	77.2	76.6	S.W. . .	1	C. K.&K. S. 5	
	9	.088	68.3	64.0	62.8	55.7	65.5	65.2	Calm . .	0	0	
	Midn't.	28.050	65.7	60.5	60.3	54.2	62.2	62.3	N.W. . .	1	0	Max. temp., 79°.3; min., 52°.3.

* From 0h. 30m. to 1 A. M., a luminous bank about the southern cross, bearing S.S.E., with streamers through the interstices of the clouds, radiating from it to an altitude of 40°, that resembled the aurora australis. From time to time the streamers faded away and brightened again in other directions, changing both color and locality. J. M. G.

NOVEMBER, 1851—Continued.

DATE.	HOUR.	BAROMETER.	THERMOMETERS.						WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Dry.	Register.			Direction.	Force.		
						Wet.	Max.	Min.				
		Inches.	°	°	°	°	°	°				
27	7 A. M.	28.046	62.7	63.8	63.0	56.2	63.6	63.4	S.E. . . .	1	0	Smoky. Min. wet, 47°.7.
	9	.047	65.8	73.2	72.3	60.8	71.6	70.3	N.W. . .	1	0	Do.
	Noon.	.051	69.2	78.2	77.0	62.3	76.8	75.8	S.W. . .	3	0	K. around horizon.
	3 P. M.	.042	71.0	79.5	78.1	61.3	78.8	78.3	S.W. . .	3	0	K. over Andes.
	6	.059	70.2	69.5	68.2	55.7	71.0	70.7	S.W. . .	4	K. & C. K.	1
	9	.116	64.5	58 3	58.1	50.2	60.7	60.3	S.W. . .	2	0	C. and C. K around horizon.
	Midn't.	.131	64.2	54.5	54.5	48.2	56.8	56.6	Eastward .	1	K. & K. S.	3 Max. temp., 79°.3; min., 52°.0.
28	7 A. M.	.150	61.3	56.7	54.9	50.0	56.4	56.3	N.W. . .	1	0	K. over Andes. Min. wet, 46°.5.
	9	.152	62.7	65.6	64.6	55.5	65.7	64.6	W.S.W. .	1	0	Do.
	Noon.	.148	66.7	72.5	71.4	58.0	71.7	70.6	S. . . .	1	0	Do.
	3 P. M.	.121	69.0	76.6	75.6	60.3	76.2	75.4	S.W. . .	1	0	Do.
	6	.089	69.8	75.7	75.0	60.2	76.0	75.3	S.W. . .	1	0	Do.
	9											
	Midn't.	.054	66.3	61.0	61.0	54.8	62.8	62.5	Calm . .	0	0	Max. temp., 76°.3; min., 49°.0.
29	6 A. M.	.015	62.2	58.4	57.6	51.8	57.4	57.0	N.E. . . .	Air.	0	Min. wet, 49°.4.
	9	.020	65.6	72.8	72.0	60.7	73.0	71.8	S.E. . . .	1	0	
	Noon.	28.007	69.3	80.0	78.3	61.8	77.6	76.5	S.E. . . .	1	0	
	3 P. M.	27.991	72.2	84.8	83.5	62.5	82.0	81.3	S.W. . .	1	0	Few K. to westward.
	6	28.007	75.7	81.5	80.0	61.2	81.2	81.0	S.W. . .	1	0	Slight earthquake shock at 3*h*. 21*m*. 37*s*. P. M.
	9	.037	72.0	69.8	69.3	60.1	70.7	70.2	Calm . .	0	0	
	Midn't.	.028	69.5	66.0	65.7	55.3	67.0	66.7	N.N.W. .	1	0	S. to westward. Max. temp., 82°.7; min., 52°.3.
30	6 A. M.	.019	64.2	63.0	62.6	55.7	61.7	61.0	Calm . .	0	C. 1 . . .	Min. wet, 51°.0.
	9	.056	69.1	79.5	77.0	62.4	77.0	76.0	S.W. . .	1	C. & C. S.	8
	Noon.	.056	72.2	84.3	83.0	63.0	82.1	81.5	S.W. . .	2	C. & C. S.	1
	3 P. M.	.053	74.7	86.0	84.4	64.3	84.7	84 6	S.W. . .	4	0	K. heavy over Andes.
	6	.092	74.4	75.7	74.3	57.8	76.7	76.3	S.W. . .	2	0	Few K. over Andes.
	9	.111	70.2	64.5	64.1	54.8	66.7	66.4	Calm . .	0	0	
	Midn't.	28.084	66.3	58.2	59.0	52.7	61.2	61.2	Calm . .	0	0	Max. temp., 84°.8; min., 54°.5.

GENERAL REMARKS.

November 17.—The wet-bulb thermometer (Centigrade) was broken in changing it from one side of the house to the other, and observations were begun with the "sky" thermometer, which was converted into a self-register wet-bulb.

DECEMBER, 1851.

DAY.	HOUR.	BAROMETER	THERMOMETERS. Att'd.	Stand-ard.	Dry.	Register. Wet.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°	°				
1	6 A. M.	28.086	63.8	59.3	57.9	51.4	59.0	58.7	N.W. . .	1	0	C. & C. S. to northward. Late. Min. wet,
	9	.086	66.6	74.0	72.5	59.0	72.2	71.0	E. . . .	Air.	0	C. &. C. S. to northwestward. [46°.6.
	Noon.	.087	70.7	81.0	79.7	62.5	79.7	79.2	S.W. . .	2	0	
	3 P. M.	.084	74.7	82.2	80.7	63.2	81.8	81.5	S.W. . .	3	0	Few K. over Andes.
	6	.090	73.7	75.5	73.6	60.2	76.5	76.2	S.W. . .	3	0	Do do.
	9	.117	67.5	61.9	61.7	55.1	64.0	63.8	Calm . .	0	0	
	Midn't.	.102	63.4	55.4	55.9	52.7	57.7	57.7	N.W. . .	1	0	An hour late. Max. temp., 81°.9; min., 51°.8.
2	7 A. M.	.078	61.7	62.3	61.5	55.8	62.2	62.0	Calm . .	0	0	Smoky. Min. wet, 47°.5.
	9	.076	65.0	67.0	66.8	58.8	68.0	66.8	S.W. .	1	0	Do.
	Noon.	.101	68.8	77.7	76.7	62.7	76.1	75.1	S.W. . .	3	0	Do.
	3 P. M.	.102	72.0	80.0	78.5	63.2	79.3	78.8	S.W. . .	1	0	K. over Andes.
	6	.115	71.4	69.9	68.4	58.3	72.0	71.3	S.W. . .	4	0	
	9	.121	63.3	55.8	56.1	52.7	58.3	58.8	S.W. . .	1	0	
	Midn't.	.113	60.0	51.9	51.8	49.9	54.1	54.2	S.W. . .	2	S. & K. S. 10	Max. temp., 79°.5; min., 49°.8.
3	7 A. M.	.154	59.3	57.7	56.5	53.3	57.2	56.7	W.S.W. .	2	S. & fog 10 .	Min. wet, 49°.6.
	9	.167	59.8	54.2	54.5	51.5	56.3	55.6	S.W. . .	1	S. & K. S. 10	
	Noon.	.196	61.4	59.6	58 1	53.3	60.5	59.4	S.E. . .	1	S. & K. S. 10	
	3 P. M.	.170	63.8	64.8	63.9	56.0	65.8	65.1	S.W. . .	1	0	Few K. around horizon.
	6	.150	65.8	69.4	73.6	57.4	69.2	68.5	S.W. . .	1	0	
	9	.166	63.7	58.4	58.1	54.0	60.0	59.6	S.W. . .	Air.	0	
	Midn't.	.132	62.1	55.0	55.2	51.6	56.7	56.6	N.W. . .	1	0	Max. temp., 69°.3; min., 48°.7.
4	6 A. M.	.092	59.3	54.0	53.1	50.2	52.4	52.3	N.W. . .	Air.	0	Min. wet, 46°.6.
	9	.087	62.8	67.2	66.4	57.8	68.2	67.7	Calm . .	0	0	
	Noon.	.086	66.8	76.6	75.8	61.4	74.2	73.0	S.W. . .	1	0	Smoky.
	3 P. M.	.072	73.4	83.8	82.4	61.3	80.6	79.8	S.W. . .	1	0	
	6	.082	74.7	80.0	78.0	61.3	79.6	79.4	S.S.W. . .	1	0	
	9	.100	70.7	67.6	67.1	58.7	69.0	68.6	N.W. . .	1	0	
	Midn't.	.069	67.7	62.6	62.2	55.2	64.3	64.3	Calm . .	0	0	Late.
5	6 A. M.	.116	65.0	62.6	62.2	55.0	62.0	61.7	N.E. . . .	Air.	0	Few C. to northward. Late. Min. wet, 38°.4?
	9	.126	67.5	74.2	72.9	61.3	73.0	72.0	N.E. . . .	1	0	
	Noon.	.124	71.8	81.5	80.1	63.5	78.8	78.0	S.W. . .	2	0	K. over Andes.
	3 P. M.	.108	73.2	84.0	82.8	64.4	82.1	81.7	S.W. . .	2	0	Do.
	6	.107	75.5	81.3	78.8	62.0	80.6	80.4	S.W. . .	1	0	Do. and C. to southward.
	9	.140	72.0	68.5	68.4	58.3	70.4	69.8	Calm . .	0	0	
	Midn't.	.145	69.0	63.0	63.3	56.2	65.3	65.0	N.W. . .	Air.	0	Max. temp., 82°.5; min., 53°.7.
6	7 A. M.	.138	65.7	67.0	66.0	56.5	65.8	66.2	Southward .	Air.	0	Smoky. C. to S. westward. Min. wet, 50°.8.
	9	.137	68.6	73.4	72.5	58.4	72.7	71.4	S.E. . . .	1	0	C. to southwestward.
	Noon.	.110	71.4	83.2	82.1	62.1	81.1	80.6	S.W. . .	1	0	Do.
	3 P. M.	.074	74.3	87.4	86.0	59.2	84.8	84.7	S.W. . .	2	C. 1 . . .	Do.
	6	.092	75.0	81.9	80.1	60.7	81.6	82.0	S.W. . .	1	C. 4 . . .	C. light.
	9	.129	72.2	68.8	67.5	56:0	70.2	69.8	N.E. . . .	Air.	C. 3 . . .	Do.
	Midn't.	.109	69.8	64.7	64.4	53.8	66.6	66.4	N.W. . .	1	C. 1 . . .	Max. temp., 84°.8; min., 54°.5.
7	6 A. M.	.116	65.7	61.6	60.6	51.2	60.7	60.1	N.W. . .	Air.	C. 2 . . .	Min. wet, 48°.8.
	9	.118	67.6	73.3	73.2	60.0	73.0	72.0	W. . . .	1	C. 3 . . .	C. light.
	Noon.	.130	71.8	79.5	79.0	61.7	78.8	78.1	S.W. . .	3	C. & C. S. 1	
	3 P. M.	.106	73.3	83 1	81.9	63.2	82.3	82.1	S.W. . .	3	C. & C. S. 1	K. over Andes.
	6	.111	74.0	73.7	72.3	58.5	74.8	74.3	S.W. . .	1	C. & C. S. 7	
	9	.134	69.7	63.8	62.8	55.2	66.0	65.7	Calm . .	0	C. & C. S. 6	
	Midn't.	28.141	66.5	59.9	59.9	53.3	62.2	61.8	N.E. . . .	Air.	C. 1 . . .	Max. temp., 82°.3; min., 54°.5.

DECEMBER, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.						WIND.		CLOUDS.	REMARKS.
			Att'd	Standard.	Dry.	Register.			Direction.	Force.		
						Wet.	Max.	Min.				
		Inches.	°	°	°	°	°	°				
8	7 A. M.	28.173	65.0	62.5	61.2	53.8	62 3	62.1	Calm . .	0	C. 3? . .	C. very light. Min. wet, 47°.5.
	9	.184	67.3	70.6	70.2	59.2	71.2	70.0	W.S.W. .	1	C. 2 . . .	Do.
	Noon.	.189	70.6	76.1	77.1	62.8	77.0	76.1	S.W. . .	3	0	Few C.
	3 P. M.	.178	72.9	79.2	78.1	63.2	79 3	78 8	W.S.W. .	2	0	K. over Andes.
	6	.184	73.0	74.5	73.6	62.1	76.2	75.5	W.S.W. .	2	0	Do. C. around horizon.
	9	.209	68 9	63.0	62.4	57.3	65.2	64.8	N.E. . . .	Air.	0	Few C.
	Midn't.	.181	66.3	59.8	58.7	55.4	62.0	62.0	N.W. . .	Air.	C. 1 . . .	Max. temp., 79°.7; min., 53°.2.
9	7 A. M.	.177	63 0	63 0	62.0	56 8	62.0	61.7	Calm . .	0	C. & C. S. 2	Min. wet, 51°.6. Rain about 3 A. M., heavy.
	9	.201	65.0	64.5	64.1	58.7	66.4	65 5	S.W. . .	2	0	C. and S. around horizon.
	Noon.	.176	68.6	75.1	74.5	63.7	74.7	73.7	S.W. . .	2	0	K. over Andes and C. to westward.
	3 P. M.	.163	73.5	76.9	75.8	64.2	77.0	76.4	S.W. . .	3	S.,C.K.C.K.S.8	
	6	.186	70.4	67.9	67.1	60 2	69 5	68.7	S.W. . .	3	S. & K. S. 9	Clear to N. westward.
	9	.189	65.8	58 7	58.3	55.2	60.3	60.5	S.W. . .	5	S. & K. S. 10	
	Midn't.	.223	63.5	57.0	56.1	54.5	58.7	58.7	S.S.W. . .	4 & 5	S. & K. S. 10	One hour late. Max. temp., 77°.8; min., 54°.0.
10	6 A. M.	.194	63.0	62.3	58.7	57.0	65.4	63.9	N.W. . .	Air.	S. & K. S. 1	Late. Min. wet, 52°.9. About 3 A. M. heavy
	9	.190	65.4	68.8	67.1	61.7	68.7	67.6	N.E. . . .	1	C..C.K.& S.2	rain (of short duration) with lightning and
	Noon.	.162	68.5	76.0	75.2	63.3	74.5	73.6	N.E. . . .	1	C.,C.S.&C.K.6	loud thunder. Quantity of rain, 0.318 in.
	3 P. M.	.144	71.1	79.0	78.0	64.8	78.4	77.8	S.W. . .	5	C. & C. S. 5	K. over mountains. At 1h. 53m. 45s. P.M. short,
	6	.157	71.3	71.9	70.8	60.5	73.0	72.2	S.W. . .	2	C.K.C.&K.S.4	Do. [quick, earthquake shock.
	9	.166	67.2	62.4	61.5	57.6	64.2	64.0	E. by N. .	1	C. & S. 3 .	
	Midn't.	.141	64.8	57.8	56.7	55.8	59.7	60.0	Westward .	1	K. K.S. & S.9	Max. temp., 78°.0; min., 56°.2.
11	6 A. M.	.142	61.8	60.2	59.2	55.5	59.2	60.3	Westward .	1	S. & N. S. 10	Min. wet, 53°.7. At 0h. 7m. 0s. A. M. earth-
	9	.142	62.0	63.0	61 5	57.0	63.7	62.7	Calm . .	0	S. & N. S. 10	quake shock, sharp and quick, without
	Noon.	.147	62.8	67.6	66.2	59.8	69.8	68.6	S.W. . .	1	S. & K. S. 10	noise.
	3 P. M.	.136	65.8	72.8	71.0	62.2	76.6	75.5	S.W. . .	3 & 4	K. & K. S. 3	
	6	.145	65.6	68.5	66.8	59 0	70.7	69.2	W.S.W. .	3	K. & K. S. 9	Clear to N.W.
	9	.175	64.4	61.9	60.8	55.2	62.2	61.0	S.S.W. . .	1	S. & K. S. 10	
	Midn't.	.142	63.4	60.4	59.2	54.2	60.6	59.8	Westward .	Air.	S. & K. S. 10	Max. temp., 80°.3; min., 56°.6.
12	7 A. M.	.162	62.2	62.2	60.3	55.2	62.7	63.0	Westward .	Air.	K. & K. S. 5	Min. wet, 51°.5.
	9	.156	63.5	66.0	64.6	58.1	66.6	65.4	S.W. . .	1	K. 4 . . .	
	Noon.	.154	65.9	70.6	70.0	60.2	71.2	70.0	S.W. . .	2	K. 3 . . .	
	3 P. M.	.126	68.1	75.0	74.0	61.6	74.5	73.2	S.W. . .	2	K. 2 . . .	K. heavy over Andes.
	6	.110	70.5	72.3	71.0	60.4	73.5	72.3	S.S.W. . .	3	0	K. around mountains.
	9	.130	67.4	62.9	61.7	56.8	64.7	64.2	Calm . .	0	0	
	Midn't.	.106	64.5	58 5	57.4	54.8	60.3	60.0	Calm . .	0	0	Max. temp., 75°.5; min., 56°.6.
13	7 A. M.	.117	64.2	64.4	63.5	57.0	64.5	64.0	Calm . .	0	0	Late. Smoky. Min. wet, 50°.2.
	9	.105	65.6	71.5	70.0	61.6	70.8	69.5	S.W. . .	Air.	0	Smoky.
	Noon.	.094	68.5	78.3	77.1	64.0	76.6	75.4	S.W. . .	3	0	K. over mountains to eastward.
	3 P. M.	.059	71.2	81.8	80.3	64.7	80.9	80.3	S.W. . .	3 & 4	K. & K. S. 5	
	6	.055	71.2	73.3	71.8	60.7	74.7	73.8	S.S.W. . .	4	K.,C.K.& C.4	
	9	.066	66.1	61.5	61.5	56.0	62.8	63.0	S.W. . .	2	S., C. S. & C 4	
	Midn't.	.084	62.8	55.8	55.6	53.5	57.2	57.3	S.W. . .	1	S. & K. S. 10	Clear spot to S. westward. Max. temp., 80°.8; min., 53°.2.
14	6 A. M.	.208	61.5	59.1	57.9	54.6	59.0	58.3	S.W. . . .	1	S. & N. S. 10	Late. Min. wet, 52°.5.
	9	.265	62.7	59.6	58.3	55.3	59.5	58.8	S.S.E. . .	1	Rain . . .	Slight.
	Noon.	.304	62.7	60.2	58.7	56.0	60.5	59.8	S.S.E. . .	1	S. & N. S. 10	
	3 P. M.	.295	64.4	72.4	69.8	63.3	76.6	76.0	S.W. . .	1	K. & C. 9 .	
	6	.279	65.7	69.0	66.4	58.5	68.4	67.5	S.W. . .	1	0	K. around horizon.
	9	.274	64.5	59.5	59.2	56.6	61.2	61.0	N.W. . .	Air.	0	Scattered C. S.
	Midn't.	28.240	61.7	54.5	54.5	52.5	55.6	56.0	N.E. . . .	Air.	0	Max. temp., 77°.5; min., 56°.0.

DECEMBER, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Standard.	Dry.	Register. Wet.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°	°				
15	7 A. M.	28.203	60.2	60.4	59.7	56.0	59.6	59.0	N.E. . .	Air.	0	Scattered C. Min. wet, 47°.9.
	9	.193	63.5	68.7	67.7	60.4	67.9	66.6	N.E. . .	Air.	C. & C. S. 1	
	Noon.	.186	68.2	76.5	75.2	62.3	74.4	73.2	S.W. . .	1	C. & C. S. 2	
	*3 P. M.	.160	72.7	83.0	81.7	63.0	80.4	79.5	S.W. . .	2	C. & C. S. 2	
	6	.160	74.3	79.3	77.7	60.5	79.2	78.5	S.W. . .	3	C.,C. K. & S. 3	
	9	.191	69.5	65.2	63.9	55.1	66.2	65.2	N.E. . .	2	0	Scattered C. & C. S.
	Midn't.	.157	67.4	63.1	62.2	56.0	64.2	63.7	N.N.W. . .	1	S., C. S. & C. 5	Max. temp., 80°.9; min., 48°.5.
16	6 A. M.	.136	64.8	61.6	61.0	55.3	60.7	60.0	Calm . .	0	S., C. S. & C. 1	Around horizon. Min. wet, 52°.7.
	9	.139	68.0	73.5	72.9	63.1	73.0	72.0	S.W. . .	1	C.,C.S.&C.K.7	
	Noon.	.139	70.6	80.6	79.7	65.6	78.7	77.6	S.W. . .	2	K., C. & C. S. 8	
	3 P. M.	.132	73.2	81.9	80.7	65.8	80.8	80.1	S.W. . .	2	0	K. over Andes; C. & S. to southwestward.
	6	.141	75.0	77.5	75.8	64.3	78.2	77.3	S.W. . .	3	0	Do.
	9	.183	70.0	65.5	65.1	58.5	67.3	66.7	S. . . .	1	0	
	Midn't.	.190	66.6	61.3	60.8	56.2	63.1	62.5	N.E. . .	1	0	Max. temp., 80°.8; min., 58°.3.
17	6 A. M.											Min. wet, 51°.8.
	9	.198	67.0	69.5	68.9	60.4	70.9	69.7	S.W. . .	1	C. & C. S. 6	
	Noon.	.193	69.5	76.6	75.8	64.4	75.8	74.8	S.W. . .	2	C. & C. S. 1	K. heavy over Andes.
	3 P. M.	.186	72.3	80 5	79.5	64.8	79.3	78.5	S.W. . .	3 & 4	C., C. S. & K. 3	Do.
	6	.188	72.2	73.9	72.5	60.5	75.0	74.1	S.W. . .	3	C. & C. S. 8	Do. C. very light.
	†9	.224	67.2	61.8	61.2	55.9	63.7	63.3	E.S.E. . .	1	C. & C. S. 4	
	Midn't.	.224	65.1	59.8	59.2	55.3	61.7	61.0	S.E. . . .	Air.	S. & K. S. 8	Max. temp., 79°.3; min., 55°.5.
‡18	6 A. M.	.208	63.4	58.5	56.9	54.2	58.7	58.1	N.W. . .	1	0	Late. S. & K. around horizon. Min. wet, 52°.2.
	9	.214	65.5	68.2	68.4	59.8	68.8	67.7	S.S.W. . .	1	K. S. & C. S. 1	K. heavy over Andes.
	Noon.	.211	68.0	72.6	71.8	62.0	72.8	71.8	S.W. . .	4	K.,K.S.&C.S.3	
	3 P. M.	.195	69.8	72.1	71.2	62.0	73 2	72.3	S.W. . .	4 & 5	K.S.,C.K.&C.8	
	6	.218	67.9	65.5	64.9	58.8	67.3	66.6	S.W. . .	4	S. & K. S. 10	
	§9	.246	65.7	61.3	60.6	56.8	62.8	62.3	S.W. . .	3	S. & K. S. 10	
	Midn't.	.226	62.2	55.5	55.6	52.6	57.0	56.2	S.S.E. . .	1	S. & N. S. 10	Max. temp., 73°.7; min., 54°.3.
19	7 A. M.	.213	64.0	60.6	59.7	55.7	60.8	60.0	W.S.W. .	1	S. & K. S. 10	Min. wet, 49°.4.
	9	.223	64.6	70.8	68.2	61 0	73.8	74.0	S.W. . .	1	K. & K. S. 10	Clouds breaking.
	Noon.	.231	65.7	67.4	67.3	59.3	68.7	67.5	S.W. . .	2	S. & K. S. 10	
	3 P. M.	.226	67.1	68.1	66.4	56.8	68.4	67.5	S.W. . .	3	S. & K. S. 10	Rain over mountains to eastward.
	6	.232	66.9	67.7	65.7	55.1	67.8	67.0	S.W. . .	1	S. & K. S. 9	
	9	.260	63.3	57.9	57.6	50.4	59.8	59.0	E.N.E. . .	1	S. & K. S. 10	
	Midn't.	.245	61.2	53.5	53.1	49.6	55.7	55.7	N.W. . .	Air.	0	S. around horizon. Max. temp., 73°.8; min. 55°.7.
20	7 A. M.	.229	59.8	58.5	57.6	51.6	58.1	57.8	Eastward .	Air.	0	K. over mount'ns to eastw'd. Min. wet, 43°.8.
	9	.226	62.1	65.7	65.5	57.1	65.3	64.2	N.E. . .	Air.	0	Do. do. and northward.
	Noon.	.216	65.5	72.4	71.4	57.7	71.2	70.2	S.W. . .	2	0	Do. do. do.
	3 P. M.	.215	67.3	73.0	71.8	57.7	73.1	72.2	S.W. . .	3	0	Do. do. do.
	6	.226	67.7	67.4	66.2	54.0	68.8	68.0	S.W. . .	2	0	Do. do. and southward.
	9	.254	63.3	57.6	56.7	52.4	59.7	59.3	E.S.E. . .	1	0	
	Midn't.	28.223	60.4	53.5	53.1	51.0	55.7	55.7	Calm . .	0	0 . . .	K. over Andes. Max. temp., 74°.2; min., 47°.5.

* At 2h. 15m. P. M. a slight whirlwind passed over the city from southwest to northeast; force of the wind about 6. It shook the house like a violent earthquake shock, but attracted no attention in the street.

† Frequent lightning over the Andes during the night.

‡ A slight earthquake about 4 A. M. J. M. G.

§ Rain began at 10 P. M., and continued at intervals during the night. Quantity of rain that fell, 0.137 in.

DECEMBER, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Standard.	Dry.	Register. Wet.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°	°				
21*	6 A. M.	28.238	59.0	58.0	56.7	51.1	58.7	57.8	S.W. . .	3	K.S. & N.S.10	Late. Min. wet., 46°.5.
	9	.242	60.2	65.4	63.7	55.3	68.2	67.6	S.W. . .	1	K. 1 . . .	Around horizon.
	Noon.	.239	63.3	67.2	66.6	55.7	67.2	66.2	S.W. . .	1	K. 2 . . .	
	3 P. M.	.210	65.0	70.9	69.8	56.4	70.9	70.1	S.W. . .	3	K. 1 . . .	Do.
	6	.210	66.8	69.1	67.1	53.5	69.0	69.9	S.W. . .	2	0	K. heavy to westward and southward.
	9	.252	63.6	57.7	57.6	50.6	59.3	59.3	W.N.W. .	1	0	Scattered K. & S.
	Midn't.	.229	61.0	53.0	52.9	47.3	55.0	55.0	N.N.E. . .	1	0	Max. temp., 71°.3; min., 50°.3.
22	6 A. M.	.236	58.2	53.8	52.9	45.7	53.1	53.1	N.W. . .	1	0	Late. Min. wet, 41°.6.
	9	.217	60.8	64.5	63.7	53.7	65.0	64.0	S.W. . .	1	0	C. to southwestward.
	Noon.	.201	64.5	73.2	72.3	56.5	71.5	70.2	S.W. . .	1	0	
	3 P. M.	.144	67.0	78.8	77.4	58.2	76.8	75.7	S.W. by W.	2	0	C. and C. S. to southwestward.
	6	.125	71.0	79.0	77.0	58.7	78.0	77.3	S.W. . .	1	0	Do.
	9	.130	67.8	64.5	64.4	55.8	65.7	65.5	N.W. . .	Air.	S. & C. S. 2	Do.
	Midn't.	.108	65.4	60.0	59.4	53.5	61.7	61.6	Calm . .	0	S.,C.S.& C.6	Late. Max. temp., 77°.8; min., 45°.6.
23	6 A. M.	.096	61.7	57.7	56.7	56.5	57.1	57.0	Calm . .	0	S.,CK.&C.S.9	Late. Min. wet, 46°.7.
	9	.095	63.5	68.2	67.1	57.2	67.5	66.7	N.E. . . .	1	S.CS.CK.&S.10	Clear to north and northwest.
	Noon.	.106	66.3	73.9	72.0	63.8	73.8	73.3	S.W. . .	2	S. & K. S. 10	Do.
	3 P. M.	.112	67.1	67.6	66.4	57.7	68.7	67.6	S.W. . .	1	S. & K. S. 10	Late.
	6	.114	66.8	66.2	64.9	58.2	67.0	66.2	Calm . .	0	S. & K. S. 10	
	9	.136	66.3	63.0	62.2	57.2	64.4	63.8	N.E. . . .	Air.	S.K.S.&C.S.10	
	Midn't.	.116	63.8	58.2	56.9	53.7	60.0	57.5	Calm . .	0	S. & C. S. 1	Late. Max. temp., 74°.0; min., 50°.8.
24	7 A. M.	.202	63.3	64.0	63.9	56.8	64.6	64.2	N.E. . .	1	S.,KS.&C.S.10	Min. wet, 50°.2.
	9	.216	64.7	68.7	68.0	59.4	69.0	67.8	W. . . .	1	S.,KS.&C.S.10	Clear to northward.
	Noon.	.244	68.0	71.0	70.0	59.7	72.0	70.8	S.W. . .	3	S.,KS.&C.S.10	Clouds breaking
	3 P. M.	.256	68.7	73.8	72.5	60.5	74.5	73.5	S.W. . .	3	S.C.S.C.K.&S.9	Clear to northward.
	6	.241	69.0	70.5	69.1	59.5	71.1	71.8	S.W. . .	2	S. C. S. & C. 4	Cloudy to southward and southeast.
	9	.265	65.7	60.2	59.4	53.7	61.2	61.5	N.E. . . .	1	S. C. S. & C. 2	To southwestward.
	Midn't.	.230	64.0	57.7	57.6	53.8	58.8	59.5	N.E. . . .	Air.	S. C. S. & C. 1	Do. Max. temp., 74°.3; min., 56°.4.
25	6 A. M.	.196	61.3	57.5	56.7	52.5	56.6	56.6	Calm . .	0	0	Late. Min. wet., 47°.0.
	9	.187	64.1	70.0	69.5	61.1	69.0	68.0	N.E. . . .	1	0	
	Noon.	.175	67.7	78.5	78.0	64.6	78.1	75.5	W.S.W. . .	2	0	
	3 P. M.	.137	73.7	83.8	82.8	67.6	82.0	82.0	S.W. . .	4	0	
	6	.140	72.2	80.3	78.1	61.7	79.4	79.3	S.W. . .	3	0	
	9	.180	69.3	66.2	65.5	56.6	67.7	67.5	Calm . .	0	0	
	Midn't.	.189	67.0	62.8	63.4	55.7	64.4	64.5	Calm . .	0	0	Max. temp., 82°.0; min., 50°.2.
26	7 A. M.	.150	64.3	63.8	63.3	54.7	63.8	63.7	N.E. . . .	Air.	0	Min. wet, 49°.3.
	9	.155	66.8	73.0	72.3	59.7	72.3	71.5	S.W. . .	1	0	Smoky.
	Noon.	.148	71.0	81.0	80.0	64.0	79.2	78.8	S.W. . .	3	0	C. to southwest.
	3 P. M.	.128	76.0	84.8	83.5	65.3	83.2	83.5	S.W. . .	3	0	C. and C. S to southward.
	6	.122	75.8	79.7	77.7	61.5	79.7	80.0	W.S.W. .	1	0	C. to eastward.
	9	.138	71.5	67.2	66.0	56.3	68.8	68.5	Calm . .	0	0	
	Midn't.	28.194	68.7	63.8	63.5	55.8	65.3	65.4	N.E. . . .	Air.	0	Max. temp., 83°.2; min., 54°.6.

* At about 8h. 8m. P. M., two distinct earthquake shocks, with loud rumbling noise, like the sound of a carriage at a distance. It lastod not less than thirty seconds, and was among the most violent and prolonged that we have experienced.

DECEMBER, 1851—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.						WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Dry.	Register.			Direction.	Force.		
						Wet.	Max.	Min.				
		Inches.	°	°	°	°	°	°				
27	7 A. M.	28.112	66.0	66.2	65.1	55.3	66.0	66.0	Westward .	Air.	0	C. to southward and S.E. Min. wet, 50°.7.
	9	.116	68.9	74.0	73.8	62.6	73 8	73 0	S.W. . .	1	0	Smoky. C. to southward and S.E.
	Noon.	.132	72.0	81.4	80.0	64.4	79.6	79.2	S.W. . .	2	0	C. to E. and S.E.
	3 P. M.	.126	73.8	82.4	81.5	59.7	81.5	81 5	W.S.W. .	4	0	C. and K. around horizon.
	6	.132	74.4	77.2	76.0	58.2	78.1	77 8	S.W. . .	2	0	C. over Andes.
	9	.163	68.5	63.0	63.5	51.8	65.0	65.0	N.E. . . .	1	0	
	Midn't.	.133	64.7	57.0	57.2	51.4	59.4	59.4	N.E. . . .	1	0	Late. Max. temp., 81°.5; min., 55°.4.
28	7 A. M.	.190	64.0	62.0	60.6	54.3	61.9	62 0	Calm . .	0	C. & C. S. 2	Min. wet, 45°.1.
	9	.202	65.7	67.9	66.8	56 6	69.2	68.4	S.W. . .	1	C. & C. S. 3	
	Noon.	.207	68.7	75 5	74.0	60 2	75.2	74.6	S.W. . .	2	0	C. and C. S. to eastward.
	3 P. M.	.207	72.8	78 3	77.0	60.7	78.0	77.8	S.W. . .	3	0	K. around horizon.
	6	.210	71.0	70.5	69.3	54.7	72.0	71.7	S.W. . .	3	0	Few scattered C.
	9	.230	66.3	60.2	60.3	51.8	62.6	62.7	N.E. . . .	1	0	
	Midn't.	.201	63.0	54.9	54.7	50.4	57.5	58.1	N.E. . .	Air.	0	Max. temp., 77°.8; min., 57°.7.
29	7 A. M.	.180	62.0	61.4	61.0	53 4	60.6	60.6	N.E. . . .	Air.	0	Min. wet, 46°.4.
	9	.184	64.7	67.4	66.8	55 6	68.9	67.2	S.W. . .	1	0	
	Noon.	.182	69 3	75.7	74.5	59.1	75.0	74.6	S.W. . .	2	0	
	3 P. M.	.170	72.4	78.2	77.0	59.6	78.0	77.8	S.W. . .	2	0	K. around horizon.
	6	.156	72.9	71.8	70.0	57.8	73.0	73.2	S.W. . .	3	0	
	9	.203	66.5	59 2	58.7	52.0	62.0	61.7	E.N.E. . .	2	0	
	Midn't.	.218	63.0	55.0	54.3	52.3	57.1	57.2	S.E. . . .	1	0	Late. S. to S.W. Max. temp., 78°.2; min., 50°.2.
30	7 A. M.	.245	62.4	59.6	57.9	53.4	60.0	60.7	N.N.W. .	1	K. & K. S. 3	Min. wet, 46°.6.
	9	.245	54.1	64.4	64.1	57.8	65 8	65.2	S.W. . .	1	K. & K. S. 5	
	Noon.	.236	67.5	72.0	71.0	60.0	71.4	70.8	S.W. . .	1	0	Few scattered K.
	3 P. M.	.226	71.3	76.8	75.8	60.0	76.2	76.0	S.W. . .	3 & 4	0	Few K. around the horizon.
	6	.209	72.2	74.2	72.7	58.8	74.7	75.0	S.W. . .	3	0	Do. over Andes.
	9	.232	68.2	63.0	62.4	56.2	64 8	64.8	S.W. . .	Air.	0	
	Midn't.	.204	66.4	59.5	58.3	52.2	61.2	61.3	N.N.W. .	2	0	Max. temp., 76°.8; min., 52°.0.
31	7 A. M.											
	9	.142	65.5	70.9	69.3	58.6	69.8	69.0	S.W. . .	1	0	Min. wet, 48°.5.
	Noon.	.130	68.7	77.4	76.0	61.3	76.2	75.7	S.W. . .	2	0	
	3 P. M.	.113	74 6	83 2	81.7	62.7	81.6	81.3	S.W. . .	3	0	
	6	.113	75.5	80.5	78.8	69.5	79.7	80.0	S.W. . .	1	0	
	9	.146	71.9	68.2	67.1	58.7	69.5	69.5	N.E. . .	Air.	9	
	Midn't.	28.125	68.4	62.0	60.8	52.0	63.7	64.0	N.N.W. .	2	0	Max. temp., 81°.6; min., 51°.2.

METEOROLOGICAL OBSERVATIONS

AT

SANTIAGO DE CHILE,

DURING THE YEAR 1852.

SYMBOLS.

FORCE OF WIND.—0, denotes calm; 1, light air; 10, a strong gale.

CLOUDS.—C., denotes cirrus; K., cumuli; S., stratus; C. K., cirro-cumulus; C. S., cirro-stratus, &c.

JANUARY, 1852.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.						WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Dry.	Register.			Direction.	Force.		
						Wet.	Max.	Min.				
		Inches.	°	°	°	°	°	°				
1	6 A. M.	28.125	64.7	58.8	57.9	51.2	57.4	57.5	Calm . .	0	0	Min. wet, 48°.2.
	9	.149	67.5	74.3	72.9	60.2	73.3	72.5	S.W. . .	1	0	Smoky.
	Noon.	.154	72.8	81.1	81.1	61.5	79.2	79.2	S.W. . .	1	0	
	3 P. M.	.138	76.2	85.0	83.8	66.0	83.8	84.0	S.W. . .	2	0	
	6	.112	76.3	77.8	76.2	59.8	79.3	79.1	S.W. . .	3	0	
	9	.113	71.4	65.8	64.4	56.0	67.7	67.2	Calm . .	0	0	
	Midn't.	.105	68.2	61.3	60.3	54.7	63.8	63.8	Calm . .	0	0	Max. temp., 84°.8; min., 53°.7.
2	6 A. M.	.140	64.9	62.5	61 7	55.0	61.5	61.5	Calm . .	0	0	Late. Smoky. Min. wet, 49°.0.
	9	.162	67.7	73 4	71.0	58.6	73.5	73.3	Calm . .	0	0	Smoky.
	Noon.	.144	72.0	79.8	78.5	62.7	78.7	78.4	S.W. . .	3	0 . . .	K. over Andes.
	3 P. M.	.132	76 0	82 5	81.0	62.3	81.8	81.8	S.W. . .	3	0	Do.
	6	.109	75 2	75.4	74.0	61.0	76.9	76.8	S.W. by S. .	2	0	
	9	.134	70.0	63.4	62.8	56.6	65.8	65.6	N.E. . . .	Air.	0	
	Midn't.	.098	68.7	62.5	61.7	56.2	64.3	64.3	N.N.W. .	Air.	0	Max. temp., 81°.8; min., 52°.7.
3	6 A. M.	.090	65.1	63.2	62.4	56.8	62.2	62.1	Calm . .	0	0	Late. Smoky to westward. Min. wet, 52°.3.
	9	.096	68.5	72.8	72.0	61.7	72.4	72.0	S.W. . .	1	0	Smoky.
	Noon.	.075	73.0	80.2	78.8	64.6	78.2	78.2	S.W. . .	1	0	
	3 P. M.	.062	76.5	82.0	80.7	63.7	81 2	81.6	S.W. . .	1	0	K. around horizon.
	6	.057	75.8	75.5	74.0	63.7	76.8	77.0	S.W. . .	1	0	Few K. over Andes.
	9	.108	70.8	65.5	65.3	59.3	67.6	67.1	S.W. . .	1	K. & K. S. 5	
	Midn't.	.112	67.3	62.0	62.0	57.6	63.8	63.5	W.N.W. .	2	S. & K. S. 10	Clear streak to westward. Max. temp., 81°.1; min., 55°.3.
4	6 A. M.	.160	64.8	64.2	62.8	57.8	64.7	64.5	W.S.W. .	2	S. & K. S. 10	Min. wet, 54°.4.
	9	.213	64.2	66.0	63.9	58.8	67.1	67.1	S.W. . .	1	S. & K. S. 10	
	Noon.	.252	66.2	68.3	66.2	59.2	68.0	67.2	S.W. . .	1	S. & K. S. 10	
	3 P. M.											
	6	.257	69.4	71.5	69.1	59.2	71.3	71.0	S.W. . .	1	K., KS. & C. K. 7	
	9	.276	67.0	60.7	59.7	55.7	62.8	62.7	Southward .	Air.	0	C. and C. S. around horizon.
	Midn't.	28.246	65.7	58.5	58.1	55.0	60.9	61.2	N.E. . . .	1	0	Max. temp., 73°.2; min., 60°.8.

JANUARY, 1852—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Standard.	Dry.	Register. Wet.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°	°				
5	7 A. M.	28.232	63.5	60.5	58.7	54.0	60.7	61.0	Calm . .	0	0	Min. wet, 47°.8.
	9	.228	65.1	68.4	67.1	59.5	66.3	67.7	S.W. . .	1	0	Smoky.
	Noon.	.241	69.5	75.0	73.4	59.2	73.7	73.0	S.W. . .	1	0	
	3 P. M.	.213	73.5	81.7	80.3	62.2	80.0	79.8	S.W. . .	2	0	K. over Andes.
	6	.186	72.8	78.7	77.4	59.8	78.6	78.5	S.W. . .	1	0	Do.
	9	.196	71.0	67.3	66.8	56.8	69.0	69.1	N.W. . .	Air.	0	
	Midn't.	.171	67.5	60.3	59.9	52.8	62.6	63.1	N.W. . .	Air.	0	Max. temp., 80°.2; min., 51°.5.
6	6 A. M.											
	9	.148	67.0	71.9	71.0	58.7	71.7	70 8	Calm . .	0	0	Smoky. Min. wet, 47°.8.
	Noon.	.144	70.4	81.5	70.0	64.2	78.7	78.0	S.W. . .	Air.	0	Do.
	3 P. M.	.108	75.5	86.8	85 0	62.2	84.2	84.6	S.W. . .	3	0	K. over Andes.
	6	.100	77.0	81.8	79.7	60.6	81.7	81.7	S.W. . .	2	0	Do.
	9	.105	72.6	69.0	68.0	57.8	70.7	70.4	N.E. . .	Air.	0	
	Midn't.	.079	69.7	64.0	63.9	56.4	66.0	66.0	N.E. . .	Air.	0	Max. temp., 84°.0; min., 53°.2.
7	6 A. M.	.074	66.3	63.0	62.0	54.2	62.3	62.2	Calm . .	0	0	Smoky. Min wet, 51°.3.
	9	.086	69.2	73.9	73.2	60.2	73.6	72.8	S.W. . .	1	0	Few K. over Andes.
	Noon.	.094	73.4	81.2	79.7	64.0	79.3	79.0	S.W. . .	2	0	Do. heavy.
	3 P. M.	.088	76.8	81.7	80.5	64.5	81.4	81.5	S.W. . .	3	0	Do.
	6	.088	74.6	73.6	72.0	60.7	74.8	75.1	S.W. . .	3	0	Do.
	9	.131	68.7	61.5	61.5	56.6	64.5	64.5	Calm . .	0	0	
	Midn't.	.110	66.3	57.7	57.2	54.3	60.6	61.3	Westward .	1	0	Max. temp., 81°.8; min., 56°.7.
8	7 A. M.	.122	61.0	60.6	58.5	55.1	61.3	61.3	Westward .	Air.	Fog 10 . .	Min. wet, 50°.6.
	9	.139	61.6	66.0	63.7	58.4	67.8	68.2	S.E. . . .	1	S. & K. S. 10	
	Noon.	.160	66.3	69.1	68.4	59.8	69.3	68.6	S.W. . .	3	0	Smoky. K. over Andes.
	3 P. M.	.151	69.0	71.5	70.8	61.2	72.4	72.0	S.W. . .	3	0	K. and C. do.
	6	.140	69.0	69.7	66.2	58.5	68.9	69.0	S.W. . .	3	0	Few K. and C. do.
	9	.181	64.8	57.3	57.2	53.3	59.7	60.2	E.S.E. . .	1	0	
	Midn't.	.162	62.6	54.2	53.8	51.0	56.9	57.3	Calm . .	0	S. & C. S. 2	To southwest and westward. Max. temp., 72°.4; min., 53°.7.
9	7 A. M.	.197	62.3	66.0	64.1	57.7	67.3	67.2	N.E. . . .	1	S. & K. S. 10	Late. Min. wet, 49°.8.
	9	.197	63.5	65.4	64.1	57.3	66.8	66.4	S.W. . .	2	S.,C.S. & K.7	
	Noon.	.194	66.8	72.0	71.4	61.2	71.8	71.5	S.W. . .	2 & 3	C.,C.S. & K.6	
	3 P. M.	.187	72.1	76.5	75.6	62.2	76.2	76.2	S.W. . .	3	0	K. around horizon.
	6	.184	71.0	71.4	70.2	59.4	72.7	72.5	S.W. . .	2	0	K. over Andes.
	9	.194	67.7	62.5	62.0	57.0	64.3	64.2	N.E. . .	Air.	0	S. to westward.
	Midn't.	.181	66.8	60.2	58.7	54.0	62.0	62.0	N.W. . .	Air.	C. & C. S. 3	Max. temp., 76°.2; min., 53°.0.
10	6 A. M.	.154	63.0	59.0	58.1	53.4	57.8	57.8	Calm . .	0	C. & C. S. 1	Smoky. Min. wet, 49°.2.
	9	.168	65.0	67.0	66.6	59.5	68.0	67.2	S.S.E. . .	1	0	Do.
	Noon.	.154	70.4	77.6	75.8	63.7	76.0	75.4	S.W. . .	2	0	Do. C. and K. around horizon.
	3 P. M.	.133	75.1	82.3	80.7	64.3	81.0	81.0	S.W. . .	3	0	C. and K. heavy.
	6	.128	74.2	76.8	74.4	63.6	76.7	76.5	S.W. . .	3	0	K. over Andes.
	9	.160	69.7	64.0	63.7	57.6	66.0	65.7	Southward .	1	0	Clouds around horizon.
	Midn't.	.153	66.0	60.0	59.7	55.7	62.0	61.7	N.E. . . .	1	0	Max. temp., 81°.1; min., 57°.8.
11	7 A. M.	.182	64.8	64.5	62.8	57.0	65.2	65.3	S.W. . .	Air.	0	Smoky; late. Min. wet, 51°.3.
	9	.191	66.3	69.8	68.2	60.8	69.2	68.5	S.W. . .	1	0	Do. Few K. over Andes.
	Noon.	.196	70.5	76.7	75.2	65.3	75.3	75.0	S. westwnrd	3	K. S. 1 . .	Over Andes.
	3 P. M.	.196	73.3	76.8	76.0	62.7	76.8	76.6	S.W. . .	3 & 4	C. & C. S. 1	Do. Two slight earthquake shocks with rumbling noise at 0h. 29m. 50s. P. M., and 0h. 30m. 7s. J. M. G.
	6											
	9	.253	66.3	60.3	60.8	55.4	63.7	63.2	S.S.E. . .	1	S. 7 . . .	
	Midn't.	28.243	64.2	56.3	55.9	53.0	58.7	58.7	S.E. . . .	Air.	S. & C. 2 .	Max. temp., 77°.2; min., 55°.0.

JANUARY, 1852—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Standard.	Dry.	Register. Wet.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°	°				
12	7 A. M.											
	9	28.218	63.3	69.0	66.4	59.0	71.5	71.0	S.W. . .	1	K. & K. S. 9	Min. wet, 49°.6.
	Noon.	.214	67.2	72.5	71.4	62.0	71.6	70.8	W.S.W. .	2	K. & K. S. 5	
	3 P. M.	.185	70.4	74.9	73.4	60.6	74.7	74.3	S.W. . .	2	K. & K. S. 2	
	6	.176	70.7	70.5	69.1	57.7	71.8	71.4	W. . . .	3	K.,K.S.&C.S.1	
	9	.192	66.2	59.0	59.0	55.2	61.5	61.5	Calm . .	0	0	S. and K. S. over Andes.
	Midn't.	.163	63.2	55.0	55.2	50.0	57.7	57.8	Calm	0	S.,K.S.&C.S.3	Max. temp., 71°.6; min., 53°.6.
13*	7 A. M.	.170	61.6	57.2	55.6	49.7	57.2	57.2	S.W. . .	1	S. & K. S. 6	Min. wet, 46°.1.
	9	.179	61.6	62.6	60.6	53.2	63.2	63.0	S.W. . .	1	K. S. & K. 8	
	Noon.	.186	65.0	67.3	66.9	56.3	68.0	67.5	W.S.W. .	5	K. S. 7 . .	
	3 P. M.	.186	66.6	68.0	66.8	52.6	68.4	69.0	W. . . .	5	K. & K. S. 9	
	6	.241	64.4	61.1	60.3	50.5	62.8	62.6	S.W. . .	1 & 2	N. S. & K. S 9	
	9	.317	61.6	54.0	52.9	49.7	56.2	56.7	E S.E. . .	Air.	0	
	Midn't.	.300	59.7	51.0	51.8	48.0	53.0	54.0	N.E. . . .	Air.	0	Max. temp., 72°.2; min., 50°.8.
14	7 A. M.											
	9	.277	60.4	63.8	62.4	54.7	63.2	62.7	N.E. . . .	1	0	Min. wet, 41°.3.
	Noon.	.274	63.8	71.6	71.0	57.7	70.2	69.3	S'd and W'd	Air.	0	
	3 P. M.	.221	66.6	76.8	75.4	57.2	75.6	75.2	S.S.W. . .	1	0	
	6											
	9	.166	68.0	66.0	64.9	56.2	68.0	67.6	Calm . .	0	0	
	Midn't.	.107	66.2	58.9	58.7	53.7	61.2	61.5	N.E. . . .	Airs.	0	Max. temp., 76°.8; min., 43'.8.
15	7 A. M.	.100	63.3	64.2	64.4	54.7	64.1	64.6	Calm . .	0	0	Late. Smoky. Min. wet, 48°.3.
	9	.104	66.0	73.4	71.6	58.7	72.0	71.0	Calm . .	0	0	Smoky.
	Noon.	.104	71.3	81.3	79.3	62.0	78.1	77.7	S.W. . .	1	0	Do.
	3 P. M.	.104	76.0	84.5	82.8	63.8	82.8	82.8	S.W. . .	3	0	Do. K. over Andes.
	6	.106	74.8	76.5	75.0	60.6	77.0	77.1	S.W. . .	3	0	
	9	.116	70.0	65.3	64.9	57.6	67.1	66.8	N.E. . .	1	0	
	Midn't.	.108	66.1	59.0	59.4	53.6	61.6	61.3	Calm . .	0	0	Max. temp., 82°.7; min., 50°.6.
16	6 A. M.	.127	63.0	58.5	57.4	51.8	57.8	58.0	W.S.W. .	1	0	Smoky. Late. Min. wet, 48°.6.
	9	.146	65.2	68.5	68.0	58.6	68.9	68.2	S.W. . .	1	0	Do.
	Noon.	.155	70.6	78.3	76.8	62.7	76.8	76.7	S.W. . .	2	0	Do. K. over Andes.
	3 P. M.	.148	74.8	81.0	79.7	64.5	80.2	80.3	S.W. . .	3	0	Do. do. and to westward.
	6	.135	73.7	75.0	73.4	62.0	75.7	76.0	S.W. . .	1	0	Do. do.
	9	.151	69.7	64.3	63.9	58.4	66.4	65.8	E. . . .	Air.	0	Frequent lightning over the Andes during the
	Midn't.	.138	67.9	61.6	61.2	57.0	63.8	63.8	Calm . .	0	0	Max. temp., 80°.3; min., 53°.0. [night.
17	7 A. M.	.132	64.7	63.7	62.6	57.4	63.3	63.3	W. . . .	1	0	Smoky.
	9	.140	67.6	72.6	71.6	62.0	71.7	71.0	N.E. . .	1	0	Do.
	Noon.	.139	73.6	82.8	81.7	65.7	80.8	80.6	W. . . .	2	0	Do.
	3 P. M.	.116	77.2	83.8	82.4	65.2	82.8	83.0	W.S.W. .	3 & 4	0	Do. K. over mountains.
	6	.103	74.7	77.6	75.0	62.8	77.6	77.7	S.W. . .	3	0	Do. K. over Andes.
	9	.124	71.0	65.0	64.4	58.7	67.2	67.0	E. . . .	Air.	0	Thunder and lightning.
	Midn't.	28.094	69.0	69.4	62.4	58.2	64.8	64.7	N.W. . .	Air.	0	Over Andes. Max. temp., 84°.1; min., 55°.0.

* About 4*h*. 15*m*. P. M. a sudden fall of rain; drops large. At 4*h*. 30*m*. hail, large and conical, or pyramidal stones, with round bases, apparently fragments of larger globes. Quantity of rain that fell, 0.110 *in*. The hail-storm extended (as we have learned) to the Angostura de Payne, but did not pass over Yungai.

JANUARY, 1852—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.						WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Dry.	Register.			Direction.	Force.		
						Wet.	Max.	Min.				
		Inches.	°	°	°	°	°	°				
18	7 A. M.	28.076	66.1	66.5	66.0	59.0	66.4	66.5	Calm . .	0	0	Smoky. Min. wet, 52°.9.
	9	.083	69.0	74.2	72.9	63.2	73.2	72.7	S.W. . .	1	0	Do.
	Noon.	.096	73.5	80.3	79.0	65.6	78.8	79.1	S.W. . .	2	0	Smoky. K. over Andes.
	3 P. M.	.094	75.7	80.4	79.3	64.4	79.8	79.6	S.W. . .	3	K. C. 1 .	Do. do. Snow falling on the
	6	.098	73.8	73.3	72.0	60.0	74.4	74.6	S.W. . .	2	K.,K.S.&C. 2	Do. do. [Andes.
	9	.123	68.7	62.2	62.0	56.0	64.6	64.5	Calm . .	0	S. & C. 4 (?)	
	Midn't.	.115	65.6	58.4	58.7	54.6	60.7	60.6	N.W. . .	Air.	S.,C.S. & C. 4	Max. temp., 79°.8; min., 56°.2.
19	6 A. M.	.080	62.2	59.5	57.9	53.6	58.4	58.3	S.W. . .	Air.	S. & C. S. 4	Smoky. Min. wet, 50°.6.
	9	.090	66.2	70.1	69.5	61.0	69.7	69.0	S.W. . .	1	S. & C. S. 1	Do.
	Noon.	.087	71.2	78.8	77.1	65.5	77.0	76.5	S.W. . .	1	0	Smoky. K. over Andes, heavy.
	3 P. M.	.078	76.2	83.2	81.7	66.3	82.0	81.7	S.W. . .	2	S.,KS.&C.S.8	K. over Andes, heavy.
	6	.079	72.8	70.9	70.0	60.8	72.0	72.0	S.W. . .	1	S. & C. S. 7	Do. do.
	9	.114	67.7	62.6	62.4	57.2	64.8	64.7	S.W. . .	1	S. & C. S. 9	
	Midn't.	.084	66.7	61.0	60.8	56.6	63.4	63.3	Calm . .	0	S. & C. S. 2	Max. temp., 81°.8; min., 54°.5.
20	6 A. M.	.088	64.3	60.5	59.0	54.7	60.5	60.5	Westward .	Air.	C. & C. S. 7	Min. wet, 51°.8.
	9	.092	67.0	69.0	68.4	61.0	69.2	68.5	W.S.W. .	1	C. & C. S. 6	
	Noon.	.103	71.0	78.7	78.5	67.5	77.3	76.8	S. westward	3	C. & K. S. 5	
	3 P. M.	.072	75.0	79.6	78.1	65.5	79.7	79.4	S.W. . .	2	S.,K.S.&C.S.7	
	6	.083	74.0	73.3	71.8	62.8	74.6	74.6	S.W. . .	2	S.,C.S.& C. 9	
	9	.104	70.8	66.2	65.5	59.5	67.8	67.8	E. . . .	1	S.,C.S.& C. 4	
	Midn't.	.103	68.8	63.2	62.8	58.5	65.4	65.4	N.E. . .	Air.	S. & C. S. 1	Max. temp., 80°.8; min., 55°.6.
21	7 A. M.	.123	66.2	65.0	63.9	58.8	65.0	65.0	S.W. . .	1	0	Smoky. Min. wet, 53°.5.
	9	.126	67.8	70.8	70.2	62.6	70.8	70.0	S.W. . .	1	0	Do.
	Noon.	.136	73.0	80.0	79.0	66.6	78.7	78.3	S.W. . .	2 & 3	K.,C.K.&C.2	K. heavy over Andes.
	3 P. M.	.125	76.8	83.1	82.1	67.5	82.4	82.6	S.W. . .	3	S.,K.S.&C.87	Do. do.
	6	.112	75.6	76.5	74.7	63.7	77.3	77.4	S.W. . .	2	S.,K.S.&C.5	
	9	.107	70.9	65.0	64.4	59.0	67.2	67.5	W.N.W. .	1	0	S. to westward.
	Midn't.	.118	67.5	58.0	58.7	57.5	62.0	63.4	W.N.W. .	2	0	Max. temp., 82°.2; min., 57°.5.
22	7 A. M.											Min. wet, 51°.6.
	9	.129	66.8	71.0	69.3	62.0	72.7	75.0	S.W. . .	2	0	Smoky. C. to westward.
	Noon.	.152	70.2	76.0	75.2	64.8	75.3	74.8	S.W. . .	3	0	Smoky. K. over Andes.
	3 P. M.	.151	74.6	78.2	77.4	65.3	78.3	78.2	S.W. . .	3	K. C. 1 . .	K. over Andes, heavy.
	6	.135	74.0	74.5	73.4	63.6	75.7	75.6	S.W. . .	2	C.,CS.&C.K.5	C. very light.
	9	.142	70.3	65.4	65.1	60.2	67.6	67.4	Calm . .	0	0	S. to westward. Lightning over Andes.
	Midn't.	.141	68.5	61.5	61.0	57.2	64.0	64.0	N.E. . . .	Air.	0	Max. temp., 78°.5; min., 54°.5.
23	7 A. M.	.213	66 0	65.0	63.9	59.1	65.1	65.0	Westward .	1	S.,C.K.& S. 3	
	9	.218	67.9	70.4	69.8	61.8	71.0	70.4	S.W. . .	1	C.K.& C.S. 2	Smoky to westward.
	Noon.	.230	72.3	78.3	77.7	66.3	77.3	77.2	S.W. . .	3	K. 1 . . .	Over Andes.
	3 P. M.	.212	75.2	80.6	79.5	66.3	80.5	80.6	S.W. . .	3	K. 1 . . .	Over Andes; snowing. (?)
	6	.208	74.2	75.4	74.3	63.5	76.3	76.3	S.S.W. . .	2 & 3	0	K. over Andes; snowing.
	9	.216	70.3	65.0	64.4	59.0	67.2	67.0	E.S.E. . .	1	0	S. to westward.
	Midn't.	.212	67.7	61.0	61.2	57.2	63.6	63.4	Calm . .	0	0	S. to westward; lightning over Andes. Max. temp., 80°.4.; min., 58°.5.
24	6 A. M.	.200	65.0	61.7	60.3	56.5	60.4	60.3	Northward .	Air.	0	Smoky.
	9	.214	68.5	71.3	71.0	62.6	71.8	71.2	S.W. . .	1	0	Smoky. K. over Andes.
	Noon.	.208	73.3	80.0	79.5	66.7	78.8	78.7	S.W. . .	3	0	Do. do.
	3 P. M.	.181	77.7	82.2	81.0	66.6	81.3	81.4	W.S.W. .	4	0	K. over Andes, heavy.
	6	.168	75.2	75.0	73.6	64.0	76.3	76.2	S.W. . .	3	0	K. over Andes, light.
	9	.169	70.0	64.0	63.5	58.8	66.5	66.4	Eastward .	Air.	0	
	Midn't.	28.150	68.0	61.0	60.6	58.0	63.3	63.0	N.W. . .	Air.	0	Late. Max. temp., 83°.4; min., 56°.1.

JANUARY, 1853—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Standard.	Dry.	Register. Wet.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°	°				
25	6 A. M.	28.188	65.4	59.5	70.0	62.6	60.6	62.8	W.N.W. .	Air.	0	Min. wet, 53°.4.
	9	.184	66.5	68.6	67.3	60.6	69.8	69.7	W.S.W. .	Airs.	0	Smoky.
	Noon.	.176	71.4	76.5	75.8	65.4	75.6	75.0	W.S.W. .	1	0	Do.
	3 P. M.	.158	75.7	80.7	79.7	66.1	79.8	79.6	W.S.W. .	2	0	K. over Andes.
	6	.140	75.0	76.9	75.2	65.3	77.4	77.5	W. by S. .	1	0	Do.
	9	.165	70.5	64.8	64.9	60.5	71.0	68.9	W. by N. .	1	0	
	Midn't.	.146	66.0	58.0	57.4	55.5	61.1	61.3	Calm . .	0	0	Max. temp., 79°.8; min., 55°.6.
26	7 A. M.	.166	62.7	60.2	59.9	56.8	63.1	63.0	W. by S. .	1	Fog 10 . .	Min. wet, 54°.6.
	9	.155	64.0	68.9	65.1	60.3	67.2	67.0	W. . . .	1	K.,C.K.&C. 4	
	Noon.	.270	69.8	75.3	74.5	64.6	73.4	72.8	W.S.W. .	3	0	Few K. over Andes.
	3 P. M.	.152	73.8	76.5	75.4	64.3	76.7	76.4	W.S.W. .	4	0	Do.; heavy.
	6	.151	71.6	70.5	69.1	61.6	71.8	71.7	S.W. . .	2	0	Do.
	9	.180	65.9	58.7	58.5	56.2	61.0	61.6	S.W. . .	1	0	
	Midn't.	.167	63.3	57.4	56.9	55.2	59.2	59.5	S.W. . .	1	S. & K. S. 10	Taken at 1 A. M. Max. temp., 76°.7; min., 58°.4.
27	7 A. M.	.193	64.0	63.8	61.7	58.3	64.0	63.3	N. eastward	Air.	S. & K. S. 10	Min. wet, 55°.2.
	9	.199	65.0	66 5	63.9	58.8	66.5	65.8	N.E. . . .	1	S. & K. S. 10	
	Noon	.197	67.7	71.2	70.5	63.2	70.8	70.3	S.S.E. . .	1	0	Few K. over Andes.
	3 P. M.	.181	73.0	79.5	78.3	64.5	78.2	78.2	S.S.W. . .	3	0	Do.; heavy.
	6	.161	74.9	77.1	75.8	63.6	77.0	76.9	S.W. . .	2	0	Do.; light.
	9	.165	71.4	67.7	67.3	61.0	69.0	69.0	Calm . .	0	0	
	Midn't.	.136	69.4	63.0	62.4	58.0	65.5	65.5	N.N.W. .	1	0	Max. temp., 78°.8; min., 59°.0.
28	7 A. M.	.195	66.1	66.8	65.1	56.8	66.3	66.2	N.N.E. . .	1	0	Smoky. Min. wet, 53°.1.
	9	.125	68 0	74 0	72.7	63.3	72.8	72.1	S.W. . .	1	0	Do.
	Noon.	.134	73.0	80.4	79.0	64.1	79.0	78.8	Southward .	1	0	Do.
	3 P. M.	.129	77.8	85.4	84.0	61.6	83.7	84.0	W.S.W. .	2	0	K. heavy over Andes.
	6	.128	77.0	79.5	78.3	59.2	79.4	79.5	S.W. . .	1	0	Do. At 4h.24m.10s. P. M. earth-
	9	.148	71.8	66.3	65.5	55.8	68.2	68.2	N.E. . . .	Air.	0	q'ke shock sudden and strong, unaccompa-
	Midn't.	.133	69.5	63.0	62.6	54.7	65.0	65.2	Calm . .	0	0	Max. temp., 83°.7; min., 56.°5. [nied by noise.
29	7 A. M.	.150	65.4	62.3	61.5	52.8	62.6	62.6	N.E. . . .	1	0	Smoky. Min. wet, 49°.2.
	9	.155	67.5	71.5	70.5	57.2	72.1	71.8	S.W. . .	1	0	Do.
	Noon.	.167	72.1	78.2	77.1	61.1	77.0	76.5	S.S.W. . .	3	0	Do.; few K. over Andes.
	3 P. M.	.158	76.2	81.2	80.1	62.2	80.6	80.6	S.W. . . .	4	0	Do. do.; heavy.
	6	.164	71.8	68.2	67.3	57.7	70.6	70.6	S.W. . .	5	0	Few K. over Andes; heavy.
	9	.214	69.7	60.4	60.1	54.6	69.8	69.8	N. eastward	Air.	0	
	Midn't.	.187	67.7	51.0	55.6	52.8	59.5	59.4	Calm . .	0	0	An hour late. Max. temp., 80°.5; min., 54°.7.
30	6 A. M.	.209	64.7	55.2	54.9	50.7	54.1	54.1	Calm . .	0	0	Smoky. Min. wet, 48°.5.
	9	.217	66.0	69.0	68 0	59.2	68.7	67.8	S.W. . .	1	0	Do.
	Noon.	.214	70.5	75.7	74.7	61.6	75.0	74.6	S.W. . .	3	0	Do.
	3 P. M.	.192	74.5	79.5	78.5	61.5	78.2	77.8	S.W. . .	4	0	Do.; K. over Andes, heavy.
	6	.182	74.2	74.1	73.6	61.3	75.4	75.0	S.W. . .	3	0	K. heavy over Andes.
	9	.185	68.7	61.3	60.8	54.5	64.0	63.8	Eastward .	1	0	
	Midn't.	.181	66.8	58.8	58.5	53.3	61.7	61.7	Calm . .	0	0	Max. temp., 78°.5; min., 51°.8.
31	6 A. M.	.196	64.0	63.4	62.2	55.6	62.7	62.7	N.E. . . .	Air.	C.K.,C.S.&C.3	Smoky. Min. wet, 51°.0.
	9	.206	66.4	70.8	71.0	61.4	69.5	68.8	N.E. . . .	1	C. & C. S. 1	Do.
	Noon.	.191	71.4	78.4	77.0	61.6	77.1	77.0	S.W. . .	1	0	Do.; K. over Andes.
	3 P. M.	.188	76.1	83.6	82.4	62.5	82.3	82.4	S.W. . .	3	C. 1 . . .	Do. do.
	6	.185	76.3	77.6	76.5	61.3	78.0	78.0	S.W. . .	2	0	K. over Andes.
	9	.193	71.7	66.5	56.0	68.0	68.0	68.2	N.E. . . .	Air.	0	
	Midn't.	28.160	69.5	62.3	61.0	55.2	64.8	64.8	Calm . .	1	0	Max. temp., 89°.3; min., 54°.2.

FEBRUARY, 1852.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Stand-ard.	Dry.	Register. Wet.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°	°				
1	6 A. M.	28.184	65.4	60.5	59.7	52.3	60.0	59.7	N.W. . .	1	0	Min. wet, 50°.1. Two heavy shocks at 6h.
	9	.185	68.0	73.2	72.3	61.4	71.2	71.8	S.W. . .	2	0	Smoky. [9m. 8s., and 6h. 9m. 20s.,
	Noon.	.192	73.6	81.0	79.5	61.8	79.3	79.4	S.W. . .	1	C. & C. S. 2	Do. [P. M., the first unaccompa-
	3 P. M.	.192	78.2	84.5	83.0	64.7	83.5	84.0	S.W. . .	3	K.S.& C.S. 3	Do. K. over Andes. [nied by noise, the
	6	.176	78.6	81.0	79.5	63.0	81.0	81.3	W.S.W. .	2	S. & C. S. 2	Do. do. [second followed by
	9	.194	74.6	70.1	69.3	60.7	71.7	71.6	Calm . .	0	C. & C. S. 3	[rumbling.
	Midn't.	.164	71.6	65.5	64.9	57.2	67.7	67.6	N.E. . . .	Air.	C. & C. S. 1	Max. temp., 83°.8; min., 56°.0.
2	6 A. M.	.116	67.0	61.7	61.2	54.7	61.2	61.1	N.E. . . .	Air.	Light C. 3 .	Min. wet, 52°.3.
	9	.112	69.6	75.5	74.7	64.6	74.1	73.4	N.N.E. . .	1	C. & C. S. 4	C. light.
	Noon.	.093	74.7	82.3	81.3	64.8	80.1	80.1	S.W. . .	1	C. & C. S. 5	Do.
	3 P. M.	.077	78.6	87.0	85.0	65.7	84.7	85.4	S.W. . .	4	C. & C. S. 6	Do.
	6	.064	79.6	82.8	81.5	64.7	82.4	83.0	S.W. . .	2	C. & C. S. 3	Do.
	9	.065	74.8	71.5	71.4	61.6	73.2	73.2	Calm . .	0	C. & C. S. 4	Do.
	Midn't.	.039	72.5	67.4	67.3	59.2	69.5	69.6	N.W. . .	Air.	C. & C. S. 1	Max. temp., 87°.6; min., 57°.8.
3	6 A. M.	.052	68.2	68.4	67.1	61.1	74.1	62.9	S.E. . . .	Airs.	S. 1 . . .	S. to the north. Smoky.
	9	.057	70.8	73.5	73.6	62.0	79.3	73.1	W. . . .	1	S. & K. 1 .	S. to north. K. over Andes. Smoky.
	Noon.	.060	76.0	82.4	82.8	65.2	82.4	82.0	S.W. . .	3	C. & K. 1 .	Over Andes.
	3 P. M.	.034	79.6	85.5	84.0	66.4	84.2	84.7	W.S.W. .	3	0	K. and C. S. over Andes and in the north.
	6	.044	78.2	78.0	87.4	65.4	79.6	79.4	W.S.W. .	1	C. & C. S. 6	K. over Andes and in the north.
	9	.058	71.5	64.8	65.5	59.6	75.5	69.9	W.S.W. .	2	C. & C. S. 6	The rest smoky.
	Midn't.	.036	70.2	64.8	64.4	59.2	66.8	66.6	S.W. . .	Airs.	C. & C. S. 9	Hazy. The thermometers had been disturbed.
4	6 A. M.	.064	68.2	61.3	61.5	57.7	70.2	64.0	Calm . .	0	C. 1 . . .	The rest smoky. Min. wet, 54°.0.
	9	.092	70.0	72.5	72.0	62.7	73.5	73.0	N'd and W'd	Airs.	C. & C. S. 8	Smoky.
	Noon.	.108	72.7	78.3	77.0	65.3	78.2	77.3	S. westward	3	C. 10 . .	
	3 P. M.	.118	77.0	80.8	80.3	66.5	80.7	80.3	W.S.W. .	3	C. 7 . . .	K. over Andes.
	6	.127	75.2	72.8	72.9	63.5	79.7	76.1	W.S.W. .	2	C. 8 . . .	The rest smoky.
	9	.152	69.5	63.1	61.7	58.1	70.8	65.9	S.W. . .	2	C. 2 . . .	Do.
	Midn't.	.144	68.0	60.5	60.1	57.0	63.0	63.0	S. westward	3	C. 2 . . .	Max. temp., 81°.0; min., 58°.0.
5	6 A. M.	.175	66.8	60.9	69.8	59.2	69.5	64.0	Calm . .	0	0	Smoky. Min. wet, 55°.2.
	9	.218	68 7	69.2	69.5	62.2	70.4	69.6	N.W. . .	1	C. & C. S. 6	K. over Andes.
	Noon.	.242	73.2	78.8	78.1	66.5	78.4	78.2	W.S.W. .	2	C. & K. S. 8	
	3 P. M.	.234	76.2	76.7	76.2	65.5	76.9	76.5	W.S.W. .	1	K. & K. S. 10	
	6	.240	74.6	75.0	74.3	64.1	75.5	75.2	S'd and W'd	1	K. & K. S. 10	
	9	.261	73.0	70.6	79.2	63.2	71.2	71.7	E.S.E. . .	Airs.	K. & K. S. 10	
	Midn't.	.196	72.3	68.1	68.0	61.2	69.3	68.0	E.S.E. . .	2	K. & K. S. 9	Max. temp., 82°.0; min., 59°.0.
6	6 A. M.	.192	69.0	65.0	64.9	64.5	65.3	65.2	E.S.E. . .	Airs.	C. & C. S. 5	Min. wet, 59°.5.
	9	.216	71.3	77.6	76.0	66.6	78.0	78.2	E.S.E. . .	Airs.	C. 5 . . .	
	Noon.	.214	76.0	85.0	83.4	70.5	82.5	82.5	S. westward	3	C. K. 7 . .	
	3 P. M.	.188	79.8	89.2	87.6	70.4	86.4	87.0	S. westward	2	C.K.& K.S. 9	
	6	.176	80.3	83.5	82.4	69.6	84.5	84.5	W.S.W. .	1	C.K.C.S.K.S.10	
	9	.136	77.2	76.2	75.4	66.3	77.2	77.1	N.W. . .	3	C.K.& K.S.10	
	Midn't.	.068	73.5	71.2	70.0	64.0	72.5	72.0	N.W. . .	2	K. & K. S. 10	Max. temp., 86°.7; min., 63°.5.
7	6 A. M.	.087	71.0	70.4	69 5	62.7	70.6	70.3	Calm . .	0	C.K.& K.S. 9	Min. wet, 60°.4.
	9	.082	74.6	83.7	83.0	69.8	81.7	81.8	N'd and W'd	Airs.	C. 5 . . .	
	Noon.	.072	80.2	88.2	87.1	69.3	85.5	85.5	S. westward	2	K. 2 . . .	Over Andes.
	3 P. M.	.070	84.3	90.7	90.4	68.7	89.7	88.6	S.W. . .	3	K. 2 . . .	Do.
	6	.068	81.6	82.5	81.5	67.9	83.4	84.1	S.W. . .	2	K. 2 . . .	Do.
	9	28.067	77.0	73.0	73.4	65.9	75.6	75.9	N.W. . .	1	0	K. over Andes.
	Midn't.	27.996	74.8	69.0	68.7	63.6	71.0	71.0	N.W. . .	2	0	Max. temp., 90°.3; min., 66°.2.

FEBRUARY, 1853—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.						WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Dry.	Register. Wet.	Register. Max.	Register. Min.	Direction.	Force.		
		Inches.	°	°	°	°	°	°				
8	6 A. M.											Min. wet, 57°.3.
	9	27.968	73.3	79.7	78.3	69.2	79.2	79.2	W.N.W. .	1	K. 2 . . .	
	Noon.	.976	79 8	85.0	84.0	69.3	84.2	84.5	S. westward	4	C. K. 1 . .	Scattered.
	3 P. M.	27.984	81.8	86.7	85.8	69.1	85.7	86.1	W.S.W. . .	4	K. 1 . . .	Over Andes.
	6	28.006	78.8	77.4	76.7	65.5	78.7	78.7	W. . . .	3	K. 1 . . .	Principally over Andes.
	9	.044	73.1	69.2	69.3	61.3	71.6	70.8	E.S.E. . .	2	0	
	Midn't.	.036	71.5	64.0	64.9	59.5	67.0	67.0	W.N.W. .	2	0	Max. temp., 87°.7; min., 61°.8.
9	6 A. M.											Min. wet, 57°.5.
	9	.088	71.7	73.5	72.7	63.4	72.9	72.0	W.N.W. .	2	0	Smoky.
	Noon.	.095	75.0	80.5	79.7	64.5	78.7	78.5	S. westward	3	0	Do.
	3 P. M.	.112	78.6	82.0	81.0	65.7	81.8	82.0	S.W. . .	3	0	Do.
	6	.114	77.1	76.4	75.6	63.6	78.0	78.3	S.W. . .	2	0	Do.
	9	.136	75.0	67.9	67.5	60.3	71.0	70.7	S.E. . . .	1	0	
	Midn't.	.103	72.6	64.5	63.5	58.9	67.2	67.3	N.E. . . .	Airs.	0	Max. temp., 89°.7; min., 66°.8.
10	6 A. M.	.072	69.9	65.0	65.3	58.4	68.3	69.2	E. . . .	Airs.	0	Min. wet, 53°.7.
	9	.076	70.8	72.0	72.5	61.4	71.8	71.3	Calm . .	0	0	Smoky.
	Noon.	.049	75.6	82.1	80.5	64.3	80.1	80.7	S.W. . .	3	0	Do.
	3 P. M.	.020	80.7	85.5	84.2	63.9	84.2	85.1	S.W. . .	3	0	K. over Andes; smoky.
	6	.020	77.9	79.1	78.0	60.2	80.0	80.4	S.W. . .	3	0	C. over Andes; smoky. (?)
	9	.054	75.0	67.4	67.5	56.8	69.9	69.9	E.N.E. . .	Airs.	0	
	Midn't.	.043	72.3	61.0	61.7	54.5	64.2	64.4	E.S.E. . .	1	0	Max. temp., 84°.2; min., 61°.9.
11	6 A. M.	.084	68.7	70.8	71.2	56.1	69.9	68.9	Calm . .	0	0	Smoky. (?) Min. wet, 52°.4.
	9	.098	70.2	71.3	71.4	59.6	71.0	70.6	E. . . .	Airs.	0	Do.
	Noon.	.108	74.6	80.6	77.7	63.7	79.8	79.9	S.W. . .	3	0	K. over Andes.
	3 P. M.	.080	79.8	82.5	81.3	63.8	82.3	82.8	S. westward	3	0	Do.
	6	.092	76.7	74.6	74.0	62.6	76.6	76.9	S.W. . .	2	0	Smoky.
	9	.106	73.9	64.4	63.9	57.8	67.2	67.4	S.E. . . .	1	0	
	Midn't.	.104	71.6	60.7	61.2	57.5	63.7	64.2	E. . . .	Airs.	0	Max. temp., 89°.7; min., 60°.9.
12	6 A. M.	.074	67.3	58 0	59.4	56.1	60.9	61.3	Calm . .	0	0	Smoky. Min. wet, 52°.0.
	9	.074	68.4	67.9	67.1	60.2	68.2	67.9	Calm . .	0	0	Do.
	Noon.	.082	72.5	77.2	75.8	64.6	76.6	76.7	W.S.W. .	3	0	
	3 P. M.	.062	76.8	80.4	79.5	66.0	80.6	81.1	S.W. . .	3	0	K. over Andes.
	6	.109	75.1	72.3	71.8	61.1	75.6	75.7	S.W. . .	3	0	K. to east and west; smoky.
	9	.148	68.0	62.8	62.8	58.0	65.2	65.8	S. . . .	3	K. & K. S. 7	
	Midn't.	.176	70.0	61.6	61.5	57.9	64.2	64.2	W.S.W. .	2	C. K. & K. S. 7	Max. temp., 80°.7; min., 57°.0.
13	6 A M.	.140	67.4	58.1	58.5	55.2	60.5	60.4	Calm . .	0	0	Min. wet, 55°.0.
	9	.172	69.1	69.8	70.0	62.6	70.1	69.7	N. . . .	1	0	Smoky.
	Noon.	.158	71.3	75.5	74.0	64.2	75.8	75.6	S. . . .	2	0	
	3 P. M.	.150	75.0	81.2	80.1	66.1	80.9	81.0	S.W. . .	2	K. 1 . . .	Principally over Andes.
	6	.150	76.0	76.0	75.4	63.9	77.4	77.7	S.W. . .	2	K. 1 . . .	Over Andes.
	9	.183	69.2	63.8	63.7	58.9	66.2	66.8	S.W. . .	2	0	K. to west.
	Midn't.	.163	68.0	61.7	62.0	58.7	64.1	64 2	E. . . .	Airs.	0	Max. temp., 81°.3; min., 58°.1.
14	6 A. M.	.152	66.5	59.7	59.9	56.8	62.6	62.7	N. . . .	0	0	
	9	.158	68.9	72.0	71.6	63.5	71.5	71.2	N.E. . . .	1	0	Smoky.
	Noon.	.139	71.8	79.4	78.0	66.6	79.0	79.0	S.W. . .	2	0	Do. K. around horizon.
	3 P. M.	.115	77.8	83.3	81.5	66.7	82.8	82.7	S.W. . .	3	0	Do. K. heavy.
	6	.113	77.3	77.7	76.0	65.8	78.0	78.5	S.W. . .	3	0	Do. do.
	9	28.141	71.0	65.8	65.3	59.8	67.7	67.6	S.S.W. . .	1	0	K. heavy.
	Midn't.											

FEBRUARY, 1852—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.						WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Dry.	Register.			Direction.	Force.		
						Wet.	Max.	Min.				
		Inches.	°	°	°	°	°	°				
15	6 A. M.	28.163	66.0	63.7	64.1	57.0	64.2	64.3	Calm . .	0	0	Late. Smoky. Min. wet, 54°.7.
	9	.178	67.5	69.2	69.5	61.4	69.3	68.6	W. by N. .	2	0	C. to westward. Smoky.
	Noon.	.171	71.0	76.2	75.2	64.7	75.7	75.4	W.S.W. .	2	0	Smoky.
	3 P. M.	.172	75.2	78.5	77.1	63.5	78.7	78.5	S.W. . .	3	0	K. around horizon.
	6	.165	73.7	72.5	71.4	59.7	74.0	73.6	W.S.W. .	2	0	
	9	.192	69.7	63.4	62.6	54.8	65.7	65.5	N.E. . . .	1	0	
	Midn't.	.170	67.8	61.0	61.0	55.2	63.5	63.6	N.E. . .	Air.	0	Max. temp., 89°.8; min., 60°.2.
16	7 A. M.	.156	63.1	56.0	58.7	51.0	56.6	56.6	N.W. . .	Air.	0	Min. wet, 49°.5.
	9	.156	65.6	68.0	68.2	60.0	67.8	67.4	N.W. . .	1	0	
	Noon.	.139	69.9	75.6	74.3	61.8	74.5	74.2	S.W. . .	1	0	
	3 P. M.	.125	75.2	82.0	80.5	64.0	80.0	80.0	S.S.W. . .	2	0	
	6	.104	76.0	76.3	75.2	62.0	77.1	77.1	S.W. . . .	1	0	
	9	.122	71.5	66.5	66.2	56.6	68.4	68.4	N.W. . .	Air.	0	
	Midn't	.104	68.6	61.2	60.8	54.0	64.1	64.3	N.W. . .	Air.	0	Max. temp., 80°.5; min., 53°.2.
17	7 A. M.	.050	63.0	57.0	55.8	50.6	55.0	55.0	Calm . .	0	0	Min. wet, 49°.0.
	9	.096	66.0	68.0	67.7	56.0	68.0	67.5	S.W. . .	Air.	0	Smoky.
	Noon.	.108	71.6	78.0	76.7	60.6	76.8	76.7	W. . . .	3	0	Do.
	3 P. M.	.114	75.8	80.7	79.7	61.4	80.8	80.7	S.W. . .	3	0	Do. Few K. over Andes.
	6	.106	73.5	71.8	70.8	56.7	73.7	73.6	S.W. . .	2	0	Do.
	9	.116	68.0	61.8	61.0	52.4	64.7	64.7	Eastward .	Air.	0	
	Midn't.	.108	65.4	57.5	57.4	52.2	60.8	61.0	Calm . .	0	0	Max. temp., 80°.6; min., 53°.2.
18	6 A. M.	.120	61.0	55.5	54.7	50.2	55.0	55.0	Westward .	Air.	0	Smoky. Min. wet, 46°.2.
	9	.126	62.5	61.5	61.5	54.7	63.0	62.5	W.S.W. .	1	0	Do.
	Noon.	.152	66.8	69.5	68.9	57.5	69.7	69.0	W.S.W. .	3	0	Do. K. over Andes.
	3 P. M.	.146	69.7	73.8	72.9	56.6	73.7	73.2	S.W. . . .	3	K. & C. 1 .	Do. do. heavy.
	6	.144	69.2	67.0	66.2	55.8	69.2	69.1	W. . . .	2	0	Few K. over Andes.
	9	.174	65.1	57.5	58.2	51.8	60.2	60.2	Southward .	1	0	
	Midn't.	.162	63.2	55.7	55.4	51.0	57.8	58.2	N.W. . .	1	0	Max. temp., 73°.7; min., 50°.6.
19	6 A. M.	.147	59.0	52 2	51.8	47.8	51.2	51.6	N.E. . . .	1	0	Min. wet, 47°.1.
	9	.155	63.0	65.4	64.4	57.0	64.8	64.3	S.W. . . .	1	0	Smoky.
	Noon.	.134	67.7	74.2	72.7	60.3	73.0	72.7	S.W. . .	3	0	Do.
	3 P. M.	.112	73.6	81.0	79.5	62.3	80.4	80.3	S.W. . .	3	0	Do.
	6	.110	73.8	74.5	73.4	59.6	75.2	75.2	S.W. . .	2	0	Do. C. and C. S. to southward.
	9	.138	68.5	62 7	62.0	55.8	65.0	65.0	N.E. . . .	1	0	
	Midn't.	.114	66.7	60.0	59.9	54.8	62.5	62.7	E.N.E. . .	1	0	Max. temp., 80°.3; min., 49°.5.
20	6 A. M.	.140	63.0	55.2	54.9	50.3	53.7	53.8	Calm . .	0	0	Smoky. Min. wet, 48°.8.
	9	.167	65.0	68.5	68.7	59.8	67.6	67.0	W.S.W. .	1	0	Do.
	Noon.	.176	69.8	75.8	74.3	62.2	74.7	74.2	S.W. . .	1	0	Do. Fog to eastward.
	3 P. M.	.159	74.5	82 7	81.0	63.3	80.0	79.7	S.W. . .	2	0	Do. Slight earthquake shocks at 11h.
	6	.159	75.4	78.1	76.7	61.3	78.1	78 1	S.W. . .	1	0	Do. [41m. 44s. A. M., and 11h. 41m. 52s.,
	9	.180	70.9	66.5	66.0	58.5	68.6	68.6	N.E. . . .	1	0	[scarcely perceptible; apparently
	Midn't.	.144	68.3	62.0	62.2	55.7	64.8	65.0	Calm . .	0	0	Max. temp., 80°.1; min., 53°.0. [from N. E'd.
21	6 A. M.	.091	62.2	57.5	57.1	50.8	56.5	56.4	N.E. . . .	Air.	0	Smoky. Min. wet, 50°.3.
	9	.102	67.0	73.5	72.7	61.2	70.8	70.2	E.S.E. . .	1	0	Do. very.
	Noon.	.107	72.3	81.5	80.1	64.3	79.1	79.1	S.W. . .	3	0	Do.
	3 P. M.	.080	78.3	87.3	85.5	64.4	85.2	85.7	S.W. . .	3	0	Do.
	6	.056	78.3	81.3	80.0	63.6	81.2	81.7	S.W. . .	1	C. & C. S. 3	Do.
	9	.068	73.3	69.3	68.7	60.2	74.2	71.0	Calm . .	0	C. 3? . .	[54°.8.
	Midn't.	28.052	71.1	64.9	63.5	56.2	67.2	67.2	Calm . .	0	0	C. around horizon. Max. temp., 85°.0; min.,

FEBRUARY, 1853—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.						WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Dry.	Register.			Direction.	Force.		
						Wet.	Max.	Min.				
		Inches.	°	°	°	°	°	°				
22	6 A. M.	28.089	64.7	59.0	58.9	53.2	58.8	58.8	Calm . .	0	0	Min. wet, 51°.3.
	9	.123	68.1	70.3	70.2	59.5	70.2	69.7	S.W. . .	1	0	Smoky.
	Noon.	.132	73.0	80.2	79.3	63.6	79.3	79.3	S.S.E. . .	2	0	Do.
	3 P. M.	.114	77.5	84.0	82.8	65.6	83.4	83.7	S.W. . .	3 & 4	0	Do.
	6	.109	76.2	76.3	75.2	63.8	77.4	77.4	S.W. . .	3	0	Do.
	9	.127	70.6	64.5	63.0	57.6	66.7	66.3	S.S.E. . .	1	0	
	Midn't.	.133	67.0	60.2	60.1	56.3	62.7	62.8	N.E. . . .	1	0	Max. temp., 83°.2; min., 56°.5.
23	6 A. M.	.160	61.8	56.5	56.4	53.6	57.5	57.3	Calm . .	0	Fog 10 . .	Min. wet, 51°.3.
	9	.184	61.6	60.7	58.3	56.1	59.7	59.5	S.E. . . .	1	Fog & S. 9 .	Fog lifting.
	Noon.	.171	67.0	71.3	70.2	62.2	70.7	70.7	S.W. . .	1	0	Smoky.
	3 P. M.	.186	72.6	77.8	76.7	64.5	77.0	76.5	S.W. . .	3	0	Do.
	6	.112	73.4	74.0	72.9	63.0	75.0	74.7	S.W. . .	2	0	Do.
	9	.114	69.2	63.8	63.5	58.2	65.8	65.7	N.W. . .	1	0	
	Midn't.	.109	66.2	59.5	59.2	55.8	61.7	61.7	N.W. . .	1	0 . . , .	Max. temp., 77°.3; min., 55°.0.
24	6 A. M.	.116	62.8	55.2	54.9	51.6	55.6	55.5	E. . . .	Air.	0	Smoky. Fog over coast-range. Min. wet,
	9	.121	65.0	65.8	66.0	59.4	66.8	66.3	W. . . .	1	0	Do. [50°.5.
	Noon.	.119	70.4	77.5	75.8	64.7	75.1	74.8	S.W. . .	1	0	Do., very.
	3 P. M.	.095	75.8	82.3	81.0	65.6	81.3	81.6	S.W. . .	3	0	Do.
	6	.098	75.8	76.8	75.6	63.3	77.6	77.5	S.W. . .	2	0	Do.
	9	.122	70.7	65.8	66.0	58.3	68.0	67.4	Calm . .	0	0	
	Midn't.	.108	69.3	63.8	63.5	57.2	66.2	66.0	N.E. . . .	Air.	0	C. S. to westward. Max. temp., 81°.1; min., 53°.6.
25	6 A. M.	.142	65.2	58.7	57.8	54.1	59.0	58.9	Calm . .	0	0	Smoky. Min. wet, 51°.6.
	9	.165	66.8	68.9	68.9	61.2	68.7	68.2	S.W. . .	1	0	Do.
	Noon.	.180	71.8	76.8	75.8	64.2	76.2	76.5	S.W. . .	3	0	Do., very.
	3 P. M.	.169	75.6	80.6	79.7	65.3	79.7	79.3	W.S.W. .	3	0	Do. K. over Andes.
	6	.164	75.2	75.5	74.5	63.5	76.6	76.4	S.W. . .	1	0	Do. do.
	9	.167	71.5	67.0	66.0	60.5	69.0	68.8	N.E. . . .	Air.	0	
	Midn't.	.134	69.5	62.8	61.5	58.5	69.5	51.0	N.W. . .	Air.	0	Max. temp., 79°.1; min., 51°.0.
26	6 A. M.	.107	65.0	60.2	59.7	55.7	59.6	59.4	Eastward .	Air.	0	Min. wet, 54°.3.
	9	.120	68.5	73.0	72.0	63.7	71.7	71.0	S.W. . .	1	0	
	Noon.	.114	73.1	81.0	80.0	66.7	78.8	78.3	S.S.E. . .	2	0	Smoky.
	3 P. M.	.090	77.7	86.5	85.0	66.2	84.7	85.2	S.W. . .	3	0	Do.
	6	.074	78.1	80.5	79.0	64.4	81.8	81.0	S.W. . .	2	0	Do.
	9	.066	74.2	70.4	69.5	61.5	72.3	72.0	N.E. . . .	1	0	
	Midn't.	28.007	70.8	66.7	66.2	58.8	68.7	68.5	N.N.W. .	1	0	Max. temp., 84°.7; min., 57°.8.
27	6 A. M.	27.977	66.2	61.3	60.8	55.3	60.8	60.5	Calm . .	0	0	Min. wet, 54°.6.
	9	28.012	69.6	74.3	74.3	63.6	72.7	72.0	S.W. . .	1	0	
	Noon.	.090	74.8	82.0	80.7	64.7	80.2	79.7	S.W. . .	2	0	Smoky.
	3 P. M.	.008	78.2	83.1	82.1	65.8	82.8	83.0	S.W. . .	3	0	Do. K. over Andes.
	6	.008	76.0	74.6	73.6	63.0	76.2	76.2	S. . . .	1	0	Do. do.
	9	28.005	72.3	66.9	66.2	59.3	69.3	69.2	S.E. . . .	Air.	0	
	Midn't.	27.976	70.2	63.9	63.0	57.5	66.2	66.2	N.W. . .	1	0	Max. temp., 82°.8; min., 60°.0.
28	6 A. M.	28.037	62.0	57.6	59.3	54.3	58.5	58.9	Calm . .	0	Fog 10 . .	Min. wet, 52°.0.
	9	.082	63.8	62.1	61.7	58.2	64.8	64.4	S.S.E. . .	1	Fog 2 . .	Around horizon.
	Noon.	.080	70.1	76.5	75.6	64.6	76.7	76.8	S.W. . . .	2	0	Taken at 1 P. M., K. over Andes.
	3 P. M.	.061	72.6	79.3	78.3	65.6	79.7	79.8	S.W. . .	3	0	Smoky. do.
	6	.056	72.2	70.1	69.3	60.8	72.0	71.7	S.W. . .	3	0	Do. do.
	9	.066	67.6	61.3	61.0	57.2	63.8	63.6	N.E. . . .	Air.	0	
	Midn't.	28.059	67.0	60.1	58.7	55.7	62.0	61.8	N.W. . .	1	0	Max. temp., 79°.5; min., 56°.8.

FEBRUARY, 1852—Continued.

DATE.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Standard.	Dry.	Register. Wet.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°	°				
29	6 A. M.	28.083	60.7	55.8	55.4	52.2	56.6	56.4	E. . . .	Air.	Fog 10 . .	Min. wet, 50°.7.
	9	.132	60.0	55.5	54.9	53.4	57.5	57.7	S.S.E. . .	1	Fog 10 . .	
	Noon.	.123	62.7	63.2	62.4	57.8	64.1	63.7	N.E. . . .	1	Fog 1 . .	To westward and southward.
	3 P. M.	.087	67.8	73.3	72.3	62.3	74.0	73.6	W.S.W. .	3	0	Smoky to southward and westward.
	6	.095	69.1	66.8	66.0	57.6	68.8	68.5	W.S.W. .	3	0	Smoky to westward.
	9	.128	63.6	56.6	56.5	53.3	59.3	59.3	N.E. . . .	Air.	C.S.C.K.&S.7	
	Midn't.	28.162	62.6	58.8	58.7	53.3	60.2	60.2	E. . . .	2	S. & K. S. 5	Max. temp., 74°.2; min., 53°.4.

MARCH, 1852.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Standard.	Dry.	Register. Wet.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°	°				
1	6 A. M.	28.182	60.1	55.2	54.5	50.0	55.2	55.2	Calm . .	0	0	Min. wet, 49°.6.
	9	.199	62.7	64.6	64.6	58.2	64.2	63.7	E.N.E. . .	2	0	
	Noon.	.192	67.1	72.5	71.4	60.2	71.0	70.5	W.S.W. .	2 & 3	C. 3 . . .	Very light.
	3 P. M.	.169	71.8	77.8	76.5	60.8	77.9	77.8	S.W. . .	3	0	Few K. on horizon.
	6	.156	72.6	74.9	73.6	60.2	75.4	75.4	W. . . .	2	0	
	9	.162	69.7	66.1	65.5	59.6	67.8	67.6	N.E. . . .	1	0	
	Midn't.	.130	67.0	59.2	58.5	56.3	62.4	62.4	Calm . .	0	0	Max. temp., 78°.6; min., 52°.9.
2	7 A. M.	.067	61.8	66.1	66.6	58.3	62.8	62.6	Calm . .	0	0	Thermometer boxes in the sun. Min. wet,
	9	.069	65.0	68.6	68.9	60.4	67.6	67.0	S.W. . .	1	0	50°.0.
	Noon.	.057	70.7	79.4	77.7	63.4	76 8	76.6	W.S.W. .	2	0	Smoky.
	3 P. M.	.038	77.1	86.3	84.6	64.5	82.7	82.6	S.W. . .	3	0	Do.
	6	.034	77.8	80.2	78.1	64.7	80.0	80.0	Calm . .	0	0	Smoky to westward.
	9	.047	73.3	70.5	69.5	60.7	71.6	71.6	N.E. . . .	Air.	0	
	Midn't.	.023	70.8	66.7	66.0	57.7	67.9	67.8	N.W. . .	1	0	Max. temp., 84°.2; min., 54°.4.
3	6 A. M.	.053	65.4	59.5	59.0	54.0	59.0	58.7	Southward .	Air.	0	Smoky to westward. Min. wet, 52°.0.
	9	.104	68.2	72.4	72.0	61.0	71.0	70.4	S.W. . .	1	0	Smoky.
	Noon.	.122	73.0	78.7	78.0	63.7	77.8	78.1	S.W. . .	2	0	Do.
	3 P. M.	.101	75.0	82.5	81.3	64.6	81.9	82.0	S.W. . .	2	C. 2 . . .	To westward.
	6	.092	75.5	74.6	73.4	61.8	75.9	76.0	S.W. . .	3	C. 1 . . .	Do.
	9	.103	69.6	64.1	63.9	57.4	66.6	66.5	S.W. . .	1	0	
	Midn't.	.092	68.7	62 3	61.7	57.0	64.7	64.9	N. eastward	Air.	0	Max. temp., 82°.2; min., 57°.2.
4	6 A. M.	.060	64.4	59.2	58.6	54.0	58.7	58.5	Calm . .	0	0	Late. Min. wet, 52°.9.
	9	.074	67.5	82.5	81.3	61.8	81.9	82.0	Calm . .	0	0	Smoky.
	Noon.	.079	72.3	80.0	78.5	64.6	77.7	77.4	S.S.E. . .	2	0	Do.
	3 P. M.	.058	78.0	85.5	84.2	66.2	83.8	84.0	S.W. . .	3	0	C. to eastward.
	6	.044	77.4	77.5	76.2	63.7	78.3	78.5	S.W. . .	1	0	Do.
	9	.036	73.0	68.5	67.5	60.2	70.6	70.2	N.E. . . .	Air.	0	[min., 55°.8.
	Midn't.	28.002	70.7	65 6	64.6	57.7	67.1	67.1	N.N.W. .	1	0	Taken at 0h. 30m. Few C. Max. temp., 84°.1;

MARCH, 1852—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Register.			Direction.	Force.		
					Wet.	Max.	Min.				
		Inches.	°	°	°	°	°				
5	6 A. M.	28.004	65.3	60.0	54.6	59.5	59.2	Calm . .	0	C. 4 . . .	Min. wet, 53°.2.
	9	.052	68.5	72.6	61.3	72.8	72.5	W.N.W. .	1	C. 5 . . .	
	Noon.	.071	73.6	80.3	63.7	78.8	78.5	S.W. . .	1	C. & C. S. 8	
	3 P. M.	.080	75.5	79.8	64.2	79.8	79.6	W.S.W. .	3	S.,K.S.,C.S. 10	A heavy, quick, earthquake shock, preceded some
	6	.100	74.1	73.1	61.0	74.3	74.3	S.S.W. . .	2 & 3	S.,C.S.& C.K.8	ten seconds by a distinct rumbling noise.
	9	.129	69.8	64.7	56.8	66.6	66.5	S.S.W. . .	2	S.,C.S.& K.S.7	
	Midn't.	.139	67.3	61.2	54.8	63.0	63.2	S.S.W. . .	1	S. & C. S. 1.	To E'd and N'd. Max. temp., 80.1; min., 57°.5.
6	6 A. M.	.137	63.1	54.5	51.1	54.1	54.0	N.E. . . .	Air.	0	Smoky. Min. wet, 50°.8.
	9	.152	65.7	66.7	58.8	67.1	66.6	S.W. . .	1	0	Do. very.
	Noon.	.138	70.0	76.0	62.8	75.7	75.3	S.W. . .	1 & 2	0	Do. do.
	3 P. M.	.104	75.0	81.3	64.5	80.7	80.5	S.W. . .	3	0	Do. do. S. and C. S. to northward.
	6	.088	75.7	77.5	63.4	78.0	77.8	S.W. . .	1	C. 5 . . .	C. very thin. Smoky.
	9	.065	71.0	66.7	58.8	68.5	68.5	S.W. . .	Air.	0	C. about horizon.
	Midn't.	.059	68.4	62.2	54.6	64.2	64.4	N.E. . . .	1	0	Late. Few light C. Max. temp., 80°.6; min., 53°.7.
7	6 A. M.	.091	64.0	58.7	52.8	57.8	58.1	S.W. . .	1	0	Smoky. Min. wet, 50°.3.
	9	.106	66.0	66.7	58.5	67.7	67.1	W.S.W. .	2 & 3	0	Do.
	Noon.	.114	70.5	75.3	62.0	74.5	74.3	S.W. . .	3	0	Do. Few K. over Andes.
	3 P. M.	.085	74.0	79.3	60.8	79.1	79.1	S.W. . .	3	0	Do. K. over Andes and to southward.
	6	.092	72.8	71.0	59.2	72.8	72.6	S.W. . .	1	C. 1 . . .	To westward. K. over Andes, light.
	9	.117	60.6	60.6	55.4	63.6	63.6	S.W. . .	Air.	0	C. and C. K. about horizon.
	Midn't.	.106	64.7	58.0	52.3	60.7	60.7	N.W. . .	Air.	0	K. over mountains to eastward. Max. temp., 79°.3; min., 55°.5.
8	6 A. M.	.145	61.6	57.1	51.2	56.8	56.5	Eastward .	Air.	S.,C.& K. S. 9	Clear to westward. Min. wet, 49°.9.
	9	.166	63.0	60.3	54.5	62.7	62.5	S.W. . .	1	C., C.S. & S.5	C. very thin.
	Noon.	.169	66.3	69.3	58.8	69.9	69.5	S.S.E. . .	1	C.S.,S. & K. 8	K. around mountains.
	3 P. M.	.159	69.8	73.2	59.7	73.8	73.4	S.S.E. . .	2	K.,K.S.& C. 2	Do. do. Very heavy over Andes.
	6	.173	70.1	69.7	57.0	71.2	70.7	S.W. . .	1	C.& K. 1 .	Over Andes.
	9	.197	66.0	59.5	51.7	62.1	62.0	Calm . .	0	C. & C. K. 2	Do.
	Midn't.	.190	64.8	57.6	50.4	60.3	60.3	N.W. . .	1	C. & C. S. 1	Do. Max. temp., 73°.7; min., 54°.0.
9	6 A. M.	.171	61.5	54.6	48.8	54.3	54.2	N.E. . . .	Air.	C. K.,C.S.& C.4	Clear to southward and westward. Min. wet, 46°.6.
	9	.181	63.7	68.8	56.0	66.3	65.8	S.E. . .	Air.	S. & C. S. 1.	Around horizon. Smoky. Late.
	Noon.	.158	67.8	74.5	60.6	73.1	72.5	W.N.W. .	1	0	S. and K. S. to southward, around horizon.
	3 P. M.	.121	72.6	80.8	60.5	79.4	79.2	S.W. . .	1	0	K. and C. around horizon. Smoky.
	6	.094	73.6	75.7	60.4	76.1	76.0	S.W. . .	Air.	0	C. and C. S. around horizon. Smoky.
	9	.098	69.3	63.1	55.0	66.0	66.0	Eastward .	Air.	0	
	Midn't.	.052	87.0	60.2	54.3	63.0	63.2	Northward .	Air.	0	Max. temp., 80°.4; min., 51°.6.
10	6 A. M.	.088	62.7	55.6	50.6	54.7	54.7	Calm . .	0	C. & C. S. 1	Around horizon.
	9	.118	64.5	66.5	57.2	65.9	65.5	E.N.E. . .	Air.	0	C. do. Smoky.
	Noon.	.120	70.0	75.8	59.8	75.1	74.7	S.W. . .	2	C. & C. S. 1	Do. do.
	3 P. M.	.119	74.3	79.4	63.2	79.6	79.5	S.W. . .	3	S. & C. S. 2	Do. do.
	6	.123	73.6	73.6	61.8	74.4	74.4	S.W. . .	3	S. & C. S. 1	Do. do.
	9	.136	69.0	63.8	57.1	65.8	65.8	Calm . .	0	0	Max. temp., 79°.5.
	Midn't.										
11	6 A. M.	.143	62.8	54.2	51.3	56.1	56.7	W.N.W. .	Air.	C. & C. S. 1	Around horizon. Min. wet, 49°.4.
	9	.171	65.2	67.2	59.4	67.0	66.8	Northward .	Air.	C. & C. S. 1	To southward. Smoky.
	Noon.	.173	69.2	75.0	62.4	74.2	73.6	S.W. . .	1	C. S. 1 . .	Do. do.
	3 P. M.	.175	73.0	77.3	62.6	77.6	77.4	S.W. . .	4	C. S. 1 . .	Do. K. over Andes. Smoky.
	6	.164	72.6	73.0	60.4	74.0	73.8	S.W. . .	2	C. & C. S. 1	Do. do.
	9	.172	68.0	63.3	56.6	65.2	65.0	Calm . .	0	0	
	Midn't.	28.140	66.6	60.5	54.8	62.7	62.0	N.E. . . .	Air.	0	C. and C. S. to S'd. Max. temp., 77°.6; min., 52°.0.

MARCH, 1852—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Register.			Direction.	Force.		
					Wet.	Max.	Min.				
		Inches.	°	°	°	°	°				
12	6 A. M.	28.140	61.2	54.7	50.3	53.9	53.8	Calm . .	0	0	S. and C. S. to southward. Min. wet, 49°.2.
	9	.159	64.3	66.0	58.2	65.7	65.2	N.W. . .	1	0	Do.; smoky.
	Noon.	.157	68.6	75.0	62.2	73.7	73.3	S.E. . . .	2	0	Do.; K. over Andes, smoky.
	3 P. M.	.132	71.2	81.5	64.3	80.7	80.7	S.W. . .	3	0	Do. do. do.
	6	.129	72.1	75.4	61.2	76.2	76.2	S.W.* . .	1	0	C. and C. S. around horizon.
	9	.137	69.4	65.3	57.9	67.7	67.4	S.S.E. . .	1	0	
	Midn't.	.126	67.0	61.5	55.6	63.8	63.8	Westward .	Air.	C. & C. S. 2	To northward. Max. temp., 81°.0; min., 52°.7.
*13	6 A. M.	.129	63.1	57.0	51.4	56.2	55.7	N.E. . . .	Air.	0	C. to northward. Min. wet, 49°.7.
	9	.152	64.9	67.5	58.2	66.8	66.4	S.W. . .	1	0	Smoky.
	Noon.	.156	70.7	79.0	62.5	76.7	76.2	S.W. . .	2	C. & C. S. 2	To northward. Smoky.
	3 P. M.	.128	75.7	83.6	64.1	82.7	82.7	S.W. . .	2	C. & C. S. 9	Light; K. over Andes.
	6	.120	75.5	76.4	60.3	77.1	77.1	W.S.W. .	2	0	C. around horizon; do.
	9	.126	71.1	65.9	57.7	58.3	68.2	N.E. . . .	1	0	
	Midn't.	.120	69.0	63.3	55.2	65.6	65.5	N.N.W. .	1	0	Max. temp., 82°.4; min., 55°.4.
14	7 A. M.	.129	63.5	59.6	52.7	59.2	59.0	S.W. . .	Air.	0	Min. wet, 50°.4.
	9	.154	66.2	69.9	59.6	68.2	67.6	Calm . .	0	0	Very smoky.
	Noon.	.154	71.6	79.0	62.3	75.7	77.4	W.S.W. .	1	0	Do.; K. over Andes.
	3 P. M.	.125	76.7	83.9	63.5	83.3	83.5	S.W. . .	4	0	Smoky. Do.; 30*m.* late.
	6	.133	75.4	74.3	60.3	75.8	75.7	S.W. . .	1	0	C. and C. S. to westward.
	9	.142	70.7	65.2	56.4	67.5	67.3	Calm . .	0	0	Frequent lightning to the eastward during the night.
	Midn't.	.139	68.4	62.3	55.3	64.6	64.6	Calm . .	0	0	Max. temp., 83°.2; min., 55°.5.
15	6 A. M.	.144	63.0	57.5	51.2	56.6	56.4	N.E. . . .	Air.	0	Smoky. Min. wet, 49°.7.
	9	.164	66.7	69.5	59.7	69.0	68.6	Southward .	Air.	0	Do., very.
	Noon.	.171	70.8	77.7	62.6	75.7	75.4	S.W. . .	1	0	Do.; K. over Andes.
	3 P. M.	.157	75.5	81.9	64.2	80.7	80.6	S.W. . .	2	0	Do. do.
	6	.162	74.2	72.6	60.0	74.2	74.0	S.W. . .	3	0	K. over Andes.
	9	.168	69.2	63.5	57.3	65.7	65.3	N.E. . . .	1	0	
	Midn't.	.137	67.0	59.5	54.8	62.0	61.4	Calm . .	0	0	Late. Max. temp., 81°.1; min., 55°.0.
16	6 A. M.	.123	62.7	55.0	50.2	55.4	55.2	N.N.W. .	Air.	0	Late. Min. wet, 49°.7.
	9	.134	65.1	67.0	59.8	66.6	66.1	N.W. . .	1	0	Smoky.
	Noon.	.134	69.7	75.7	62.8	74.2	78.7	S.S.E. . .	1	0	Do.
	3 P. M.	.116	74.2	80.1	64.2	79.6	79.4	S.W. . .	3	0	Do.; K. over Andes.
	6	.116	73.4	72.5	61.0	73.8	73.7	S.W. . .	2	0	Do. do.
	9	.116	69.3	64.3	57.7	66.1	65.8	N.E. . .	1	0	
	Midn't.	.084	68.0	61.1	55.3	63.4	63.4	N.E. . . .	1	0	Max. temp., 79°.6; min., 54°.5.
17	6 A. M.	.068	61.0	55.3	50.8	54.7	54.2	S.E. . . .	Air.	0	Smoky. Min. wet, 48°.0.
	9	.112	64.9	67.2	58.8	66.3	66.0	W. . . .	1	0	Do., very.
	Noon.	.133	68.8	74.7	61.0	73.3	72.7	S.W. . .	2	0	Do.; K. S. to westward.
	3 P. M.	.110	72.6	76.7	62.0	77.2	77.0	S.W. . .	3	0	Do., over Andes.
	6	.132	70.8	68.0	57.7	70.2	69.8	S.E. . . .	1	C. & C. S. 1	Around horizon; ditto.
	9	.195	68.2	59.2	52.3	61.2	61.4	W.N.W. .	4	S. & K. S. 1	To eastward.
	Midn't.	28.236	64.7	52.7	48.0	55.2	55.7	Calm . .	0	0	S. & K. S. to E. by S. Max. temp., 77°.7; min., 53°.7.

* At about 12*h.* 30*m.*, P. M., whilst C. and C. S. clouds were passing over head, the sunlight was of an orange-yellow color, somewhat similar to its appearance during an eclipse. The sun, being examined through a smoked glass, presented no unusual appearance—the light varied probably according to the density of the clouds, and seemed deeper near buildings or where reflected from the walls. Lasted about half an hour.

E. R. S.

MARCH, 1852—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Register. Wet.	Register. Max.	Register. Min.	Direction.	Force.		
		Inches.	°	°	°	°	°				
18	6 A. M.	28.324	61.7	55 0	50.0	55.6	55.5	W.N.W. .	1	S. & K. S. 10	Wind cold and chilly. Min. wet, 44°.8.
	9	.365	61.7	54.5	48.0	55.6	55.6	S.W. . .	4	S. & K. S. 9	Do. do. clear to southwestward.
	Noon.	.361	62.8	62.8	52.2	63.7	63.3	E.S.E. . .	2	K. & C. 4 .	C light.
	3 P. M.	.355	65.0	67.1	52.8	67.7	67.2	S. . . .	3	0	K. around horizon.
	6	.363	65.6	60.8	50.7	62.8	62.8	S.W. . .	1	0	C. & C. S. around horizon.
	9	.393	61.7	53.8	48.5	56.0	56.6	N.E. . . .	1	0	Do. do. (?)
	Midn't.	.404	60.0	50.2	44.8	52.3	53.4	N.E. . . .	1	0	Max. temp., 68°.0; min., 52°.5.
19	6 A. M.	.346	54.7	46.5	41.4	43.8	44.5	Calm . . .	0	0	Few C. to southwestward. Late. Min. wet, 39°.6.
	9	.323	57.3	56.8	48.7	56.8	56.6	W.N.W. .	1	0	
	Noon.	.272	61.3	64.5	50.7	64.7	64.3	W. . . .	3	C. 5 . . .	Smoky.
	3 P. M.	.228	63.7	68.8	54.9	69.8	69.0	W.S.W. .	2	0	Scattering C.
	6	.204	64.6	63.5	52.0	65.1	65.2	S.W. . .	2	0	Do.
	9	.191	62.5	56.0	48.7	58.0	58.4	W.N.W. .	1	0	
	Midn't.	.135	59.7	54.1	47.0	55.3	55.7	N.N.W. .	1	0	Max. temp., 69°.6; min., 43°.7.
20	6 A. M.	.089	54.8	48.0	43.0	46.0	45.6	Calm . .	0	0	Smoky to westward. Few C. & C. S. Min. wet,
	9	.130	58.3	60.0	51.2	59.5	59.0	S.S.E. . .	1	C. 1 . . .	Do. [42°.3.
	Noon.	.157	64.6	71.8	56.3	71.7	71.1	S. . . .	2	C. S. 1 . .	Do.
	3 P. M.	.131	70.2	77.9	50.8	77.7	77.3	S.S.W. . .	3	0	Do. C. & C. K. to southwest.
	6	.141	69.7	68.8	58.0	70.5	70.2	S.S.W. . .	2	C. & C. S. 1	Do. and to eastward.
	9	.142	66.0	61.2	55.0	62.3	62.6	N.N.W. . .	1	0	
	Midn't.	.118	62.0	54.8	50.4	56.2	56.8	Calm . .	0	0	Late. Max. temp., 77°.7; min., 46°.0.
21	6 A. M.	.120	58.4	50.8	47.5	52.7	53.2	S.S.W. . .	Air.	0	Smoky to westward. Min. wet, 46°.9.
	9	.163	62.1	66.3	56.1	64.8	64.4	S.W. . .	1	0	Do.
	Noon.	.176	68.0	77.2	61.7	74.2	73.6	S.W. . .	1	0	Do. very; S. to southward.
	3 P. M.	.164	73.1	82.2	63.7	81.0	81.0	S.W. . .	2 & 3	C. 1 . . .	Do. C. scattered.
	6	.186	72.7	72.8	59.8	73.7	73.5	Southward .	Air.	C. & C. S. 3	Do. do.
	9	.208	68.3	64.3	56.5	65.5	65.4	N.E. . . .	Air.	0	C. S. scattered.
	Midn't.	.195	65.5	58.6	54.6	61.0	61.0	Calm . .	0	0	Do. to southeastward. Max. temp., 80°.8; min., 52°.6.
22	6 A. M.	.191	60.1	55.3	50.6	54.7	54.7	N.E. . . .	Air.	C. & C. S. 5	Late. Min. wet, 50°.2.
	9	.211	63.5	67.2	58.8	65.8	65.5	Westward .	Air.	C. 2 . . .	Smoky.
	Noon.	.207	68.5	76.0	62.7	75.1	74.8	W.S.W. .	2	C. 1 . . .	Do.
	3 P. M.	.178	73.3	80.6	63.6	79.7	79.6	S.W. . .	2 & 3	0	Do. C. & S. to southward.
	6	.182	73.0	74.3	61.2	75.2	75.0	E.S.E. . .	1	C. 2 . . .	
	9	.182	68.7	64.5	56.7	65.3	65.4	W.N.W. .	2	0	Late.
	Midn't.	.172	66.4	61.8	55.0	63.0	62.9	Northward .	Air.	0	Max. temp., 79°.7; min., 53°.7.
23	7 A. M.	.179	60.7	58.5	53.0	58.3	58.3	N. eastward	Air.	0	Smoky. Min. wet., 48°.2.
	9	.198	63.7	67.8	58.1	65.8	65.3	W. . . .	1	0	Do.
	Noon.	.195	69.2	76.7	61.3	74.9	74.3	S.W. . .	2	0	Do.
	3 P. M.	.176	73.6	80.6	62.0	80.3	80.2	S.W. . .	3	0	Do.
	6	.185	71.2	71.2	57.7	72.7	72.6	S.W. . .	3	0	C. & S. to west and northwestward.
	9	.193	68.0	62.3	54.3	64.2	64.4	S.S. E. . .	1	0	
	Midn't.										Max. temp., 80°.5; min., 54°.8.
24	6 A. M.	.173	60.4	54.2	50.6	56.0	56.2	Calm . .	0	C.K.C.&K.S. 9	Min. wet, 47°.8.
	9	.212	63.0	63.1	55.6	63.6	63.3	S. westward	Air.	S.,C.S.&C.K.10	
	Noon.	.220	65.8	69.1	58 3	69.7	69.1	W.S.W. .	1	S. & K. S. 10	
	3 P. M.	.217	68.3	71.6	59.3	72.3	71.8	Southward .	2	S. & K. S. 10	Clear to westward.
	6	.217	68.0	67.0	57.7	68.1	67.7	Southward .	1	S.,C.S.&C.K.9	Upper stratum C. K.
	9	.236	66.7	63.2	56.3	64.6	64.5	Calm . .	0	S., C. S. & C. 4	Stars indistinct.
	Midn't.	28.230	64.3	58.5	54.4	60.7	60.7	Northward .	Air.	S. & K. S. 10	Max. temp., 73°.0; min., 53°.6.

MARCH, 1859—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Register.			Direction.	Force.		
					Wet.	Max.	Min.				
		Inches.	°	°	°	°	°				
25	6 A. M.	28.252	62.2	57.6	53.9	59.1	59.2	Eastward .	Air.	S.,C.& K.S. 10	Clear to westward. Late. Min. wet, 52°.5.
	9	.258	63.7	66.0	58.7	65.2	65.0	W. . . .	Air.	S., C. K. & S. 5	Smoky to westward.
	Noon.	.254	67.7	73.3	60.3	73.6	73.3	S.W. . .	2	0	
	3 P. M.	.232	71.5	77.6	62.6	78.1	77.8	S.W. . .	2 & 3	0	K. over Andes.
	6	.228	71.8	73.2	61.3	74.0	73.7	S.W. . .	Air.	0	C. and C. S. around horizon.
	9	.228	68.7	64.3	56.7	66.1	66.2	N.N.W. . .	Air.	0	
	Midn't.	.162	64.7	58.9	52.7	60.3	60.4	N.N.W. . .	Air.	0	Taken at 2 A. M. Max. temp., 78°.3; min., 53°.2.
26	6 A. M.	.153	60.1	54.5	51.7	56.2	56.3	Calm . .	0	0	Late. Min. wet, 48°.3.
	9	.175	63.4	67.7	58.0	65.8	65.6	Calm . .	Air.	0	Smoky.
	Noon.	.126	69.0	76.4	61.2	74.3	73.6	S.W. . .	3	0	Do.
	3 P. M.	.095	73.4	81.7	63.1	81.0	80.7	S.W. . .	2	0	
	6	.107	73.6	74.4	61.0	75.4	75.3	S.W. . .	1	0	C. S. to westward.
	9	.135	70.0	66.8	58.7	68.3	68.3	S.W. . .	1	0	[54°.5.
	Midn't.	.102	66.6	60.2	54.6	62.3	62.4	N.N.E. . .	Air.	0 . . .	Taken at 1h. 30m. A. M. Max. temp., 81°.0; min.,
27	6 A. M.	.105	62.5	55.0	51.7	57.7	57.6	N. eastward	Air.	0	C. S. to westward and southward. Min. wet, 51°.6.
	9	.134	65.0	67.3	59.5	66.8	66.6	S.W. . .	Air.	0	Smoky to west and south.
	Noon.	.132	70.2	77.8	62.8	77.2	77.0	S.W. . .	2 & 3	0	Smoky. K. and S. over Andes and to southward.
	3 P. M.	.128	73.9	81.1	64.3	80.7	80.5	S.W. . .	3	C. & C. S. 4	Do. heavy.
	6	.144	73.2	73.0	61.3	74.0	74.1	S.W. . .	1 & 2	C., C. S. & K. 1	Do. do. C. and C. S. to W'd and S'd.
	9	.158	68.9	64.6	58.3	66.7	66.6	Calm . .	0	0	
	Midn't.	.156	67.3	61.3	56.1	63.6	63.6	N.E. . .	1	0	Max. temp., 80°.5; min., 57°.5.
28	7 A. M.	.154	62.3	58.2	54.0	59.7	59.4	S.E. . .	Air.	0	Smoky. Min. wet, 51°.3.
	9	.184	64.8	69.6	60.8	67.6	67.2	S.W. . .	1	0	Do.
	Noon.	.183	69.7	77.0	64.6	76.6	76.3	S.W. . .	1	0	Do.
	3 P. M.	.157	74.2	82.5	65.7	81.8	82.0	S.W. . .	2	0	Do. K. over Andes.
	6	.160	75.1	76.6	63.7	77.4	77.3	S.W. . .	2	0	C. and C. S. to W'd and N'd. K. over Andes.
	9	.165	70.7	67.1	60.2	68.6	68.6	N.E. . .	Air.	0	
	Midn't.	.167	68.3	62.3	56.7	64.3	64.5	Calm . .	0	0	Max. temp., 81°.8; min., 57°.3.
29	6 A. M.	.172	63.0	55.8	53.1	58.1	58.3	S. eastward.	Air.	0	C. S. to westward. Min. wet, 52°.9.
	9	.216	65.0	69.5	60.3	67.4	67.2	N.E. . .	Air.	0	Smoky.
	Noon.	.217	71.1	79.1	63.5	77.8	77.7	S.W. . .	Air.	0	Do.
	3 P. M.	.216	75.8	84.3	65.6	83.2	83.5	S.W. . .	1	0	Do. K. over Andes.
	6	.224	75.7	75.7	62.8	77.0	77.0	S.W. . .	1	0	C. S. to westward.
	9	.242	71.3	67.0	59.7	68.7	68.7	N.E. . .	Air.	0	
	Midn't.	.237	69.2	63.6	57.6	65.6	65.6	N.W. . .	Air.	0	Max. temp., 83°.2; min., 58°.0.
30	6 A. M.	.196	62.3	56.0	53.6	58.2	58.5	Calm . .	0	0	Late. Min. wet, 51°.2.
	9	.204	65.5	69.2	60.5	67.7	67.3	N.E. . .	Air.	0	Smoky.
	Noon.	.194	70.8	77.7	62.2	76.8	76.6	S.W. . .	1	0	Do.
	3 P. M.	.143	75.8	82.6	63.2	79.8	79.6	S.S.W. . .	2 & 3	0	Do.
	6	.139	75.1	75.2	61.8	76.2	76.2	Calm . .	Air.	0	Do. C. to westward.
	9	.126	71.0	66.3	57.5	68.1	68.0	N.E. . .	1	0	
	Midn't.	.079	67.5	60.8	56.2	63.2	63.2	N.W. . .	Air.	0	Max. temp., 81°.7; min., 55°.6.
31	7 A. M.	.047	61.9	56.7	51.2	57.8	58.2	N.W. . .	2	0	Min. wet, 48°.3.
	9	.040	64.1	67.0	60.7	66.2	65 8	S. . . .	Air.	0	Smoky.
	Noon.	.028	70.5	78.6	64.3	77.5	77.0	E. . . .	Air.	0	Do.
	3 P. M.	.025	75.8	85.2	64.2	83.6	83.6	S.W. . .	2	0	Do.
	6	.044	76.0	77.7	62.8	78.2	78.2	S.W. . .	2	0	Do. C. and C. S. to westward.
	9	.085	71.3	67.8	56.8	69.3	69.3	S.E. . .	2	0	
	Midn't.	28.064	66.7	58.5	52.7	61.6	61.4	Calm . .	0	0	Taken at 1 A. M. Max. temp., 83°.5; min., 54°.7.

GENERAL REMARKS.

* *March* 5.—The use of the Centigrade thermometer (dry, of the Journal) was discontinued because the paper scale had become *loose*, and was no longer reliable.

APRIL, 1852.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Standard.	Register. Wet.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°				
1	6 A.M.	28.057	61.6	53.2	50.7	55.8	56.0	Calm . .	0	0	Late. Min. wet, 50°.1.
	9	.063	64.3	66.8	58.4	65.6	65.2	Northward .	Air.	0	Very smoky.
	Noon.	.062	69.6	77.0	62.5	75.3	75.0	S.W. . .	1	0 . . .	Do.
	3 P. M.	.062	74.7	80.5	63.7	79.4	79.2	S.W. . .	3 & 4	0	Do.
	6	.091	71.7	66.2	58.0	69.5	69.3	S.W. . .	1	0	Very smoky to westward.
	9	.132	67.0	60.8	55.4	62.8	63.0	N. eastward	1	0	
	Midn't.	.128	64.8	56.3	52.7	58.8	59.4	N.E. . . .	1	0	Max. temp., 79°.3; min., 55°.5.
2	6 A.M.	.120	60.0	50.7	48.2	53.5	53.8	Eastward .	Air.	S.,C.& C.S. 6	Min. wet, 47°.4.
	9	.147	60.8	60.1	55.3	61.6	61.3	Calm . .	0	S.,C.S.&C. 5	
	Noon.	.167	66.5	72.0	61.2	71.7	71.2	S.W. . .	1	S.,C.S.&C. 9	
	3 P. M.	.152	70.2	73.2	61.4	74.3	74.0	S.W. . .	2	S.,KS.&CS. 10	Clear in spots.
	6	.160	67.4	62.4	57.2	65.6	65.5	Calm .	0	C. & C. S. 3	
	9	.154	64.7	57.9	54.3	60.2	60.4	N.W. . .	Air.	0	
	Midn't.	.112	61.3	52.1	50.4	55.2	55.3	N.E. . . .	1	0	Taken at 2 A. M. Max. temp., 75°.3; min., 53°.0.
3	6 A.M.	.107	59.0	51.3	49.8	53.3	53.6	Eastward .	Air.	0	Late; smoky. Min. wet, 47°.4.
	9	.098	61.2	63.0	56.7	63.0	63.0	N.E. . . .	Air.	0	Very smoky.
	Noon.	.086	66.2	72.7	61.3	72.5	72.0	S.W. . .	1	0	Do.
	3 P. M.	.055	71.2	78.6	61.8	76.8	76.3	S.W. . .	1	0	Do.
	6	.056	71.4	71.7	60.4	72.8	72.5	S.W. . .	1	0	C. S. to westward.
	9	.064	67.6	63.2	55.8	64.7	64.7	Calm . .	0	0	
	Midn't.	.072	65.2	58.4	53.2	60.7	60.8	N.E. . . .	1	0	Max. temp., 77°.2; min., 51°.4.
4	6 A.M.	.086	60.3	52.3	49.0	54.8	54.8	N.E. . . .	Air.	0	Smoky. Min. wet, 47°.2.
	9	.119	62.3	63.7	56.3	63.2	63.0	Calm . .	0	0	Do.
	Noon.	.127	67.3	75.0	60.0	73.2	72.8	S.W. . .	2	0	Do.
	3 P. M.	.116	71.0	77.8	59.4	77.4	77.2	S.W. . .	1	0	Do.
	6	.128	71.0	69.8	59.3	71.5	71.3	S.W. . .	2	0	C. S. to westward.
	9	.154	67.3	62.8	56.7	64.7	64.7	N.E. . . .	Air.	0	
	Midn't.	.150	65.0	58.4	54.4	60.7	60.7	Northward .	Air.	0	Max. temp., 77°.8; min., 54°.0.
5	7 A. M.	.085	58.7	51.5	48.0	53.9	54.1	S. eastward	Air.	0	Min. wet, 47°.0.
	9	.119	62.0	63.8	56.8	63.7	63.4	Southward .	Air.	0	Smoky.
	Noon.	.106	66.6	73.9	61.5	72.0	71.4	S.W. . .	1	0	Very smoky.
	3 P. M.	.092	71.4	79.9	62.7	79.2	79.0	S. . . .	1	0	Do.
	6	.104	72.0	73.2	61.3	73.8	73.7	S.W. . .	1	C. & C. S. 1	To westward.
	9	.104	67.2	62.8	56.0	64.6	64.6	Calm . .	0	0	
	Midn't.	.093	65.6	59.8	54.0	61.2	61.5	N.N.W. . .	Air.	0	Max. temp., 79°.5; min., 53°.0.
6	6 A. M.	.153	60.1	52.3	49.0	54.4	55.0	Northward .	Air.	0	Smoky to westward. Min. wet, 48°.6.
	9	.198	63.0	64.6	57.7	64.1	63.8	S.W. . .	Air.	0	Smoky. S. and C. S. to westward.
	Noon.	.194	67.3	73.3	60.7	72.7	72.0	S.W. . .	2	0	Do. do.
	3 P. M.	.188	71.2	76.0	62.7	76.2	75.7	S.W. . .	2	KS.,CK.&CS. 8	
	6	.185	70.8	70.8	60.6	71.7	71.4	S.W. . .	1	C.,C.K.&C.S.6	
	9	.181	68.0	62.8	55.3	64.5	64.5	Southward .	Air.	C. & C. S. 1	
	Midn't.	.172	64.7	57.8	53.2	60.0	60.3	Calm . .	0	C.,C.K.&S. 3	Max. temp., 76°.8; min., 54°.5.
7	6 A. M.	.094	58.2	49.0	46.8	51.7	52.0	Calm . .	0	S. & C. S. 1	To westward. Min. wet, 46°.6.
	9	.122	62.2	65.0	57.0	64.7	64.4	S.W. . .	Air.	C. & C. S. 3	Mostly to southward; smoky.
	Noon.	.095	67.7	75.7	62.0	73.8	73.2	N.E. . . .	1	C.,C.K.&S. 3	Do. do.
	3 P. M.	.061	72.2	79.3	63.0	79.0	79.6	S.W. . .	Air.	C. & C. S. 2	Do. do. Earthquake at 4h. 34m.
	6	.063	71.8	71 5	58.6	72.5	72.3	S.W. . .	2	S. & C. S. 2	Mostly to southward and southwest. [45s. P. M.
	9	.069	66.6	59.9	53.5	62.6	62.5	S.E. . . .	1	C. & C. S. 1	Mostly to southward. [79°.2; min., 51°.8.
	Midn't.	28.070	64.2	56.3	53.5	60.2	60.7	N.E. . . .	Air.	C.,CS.CK.&S.4	Mostly to southward and S. eastward Max. temp.,

APRIL, 1852—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Register.			Direction.	Force.		
					Wet.	Max.	Min.				
		Inches.	°	°	°	°	°				
8	6 A.M.	28.029	60.0	52.5	50.1	54.5	54.7	N.E. . . .	Air.	0	C. to westward; late. Min. wet, 48°.6.
	9	.106	62.2	63.5	56.2	63.6	63.3	Calm . .	0	0	Smoky.
	Noon.	.107	67.2	74.7	60.5	74.7	74.5	S.W. . .	1	0	Very smoky.
	3 P. M.	.096	72.2	79.3	61.3	79.2	79.2	S.W. . .	1 & 2	C. & C. S. 1	Do.
	6	.097	71.6	71.7	59.3	72.8	72.4	S.W. . .	1	S. & C. S. 6	
	9	.116	66.5	59.9	54.7	62.5	62.5	Calm . .	0	S. & C. S. 2?	
	Midn't.	.114	64.0	59.4	54.0	61.2	61.0	Northward .	Air.	S. & K. S. 10	Taken at 1 A. M. Max. temp., 79°.2; min., 51°.8.
9	6 A.M.	.115	62.0	55.9	51.4	58.1	58.0	Calm . .	0	S. & K. S. 10	Clear in spots. Min. wet, 48°.6.
	9	.119	62.8	63.3	55.5	63.7	63.4	Calm . .	0	K.S.,C.K.&S.7	
	Noon.	.126	66.3	72.3	60.8	72.7	72.2	Calm . .	0	C.,C.K.&C.S.6	
	3 P. M.	.100	71.2	78.0	62.2	78.1	77.6	S.W. . .	1	C. & C. S. 1	
	6										
	9	.115	66.6	61.5	52.8	64.0	64.0	N.W. . .	Air.	C. & C. S. 1	
	Midn't.	.113	63.8	56.0	51.0	58.6	59.0	Calm . .	0	0	Few scattered C. Max. temp., 78°.2; min., 57°.7.
10	7 A.M.	.085	58.3	54.8	49.0	55.7	56.0	N.E. . . .	Air.	0	Min. wet, 44°.0.
	9	.104	62.4	65.8	56.6	64.7	64.4	S.W. . .	1	0	Smoky to southwestward.
	Noon.	.078	67.8	77.8	62.6	76.8	76.3	W. . . .	1	0	Do.; few C. to northward.
	3 P. M.	.071	72.8	82.4	62.2	81.2	80.8	S. westward	1	0	Do. do.
	6	.082	72.7	74.2	58.0	74.7	74.6	S. westward	Air.	0	C. and C. S. to westward.
	9	.088	68.2	62.5	55.2	64.7	64.7	N.W. . .	1	0	
	Midn't.	.079	66.1	60.1	53.8	61.6	61.7	Southward .	Air.	0	Taken at 1 A. M. Max. temp., 83°.3; min., 50°.7.
11	6 A.M.	.046	59.6	52.2	48.2	54.1	54.5	N. eastward	Air.	0	Min. wet, 47°.3.
	9	.062	63.0	66.4	58.0	64.8	65.2	Calm . .	0	0	Very smoky to west and south.
	Noon.	.037	69.2	79.5	62.6	76.7	76.2	Calm . .	0	0	Do.
	3 P. M.	.023	74.0	83.1	63.5	81.7	81.7	S.W. . .	1	0	Do.
	6	.047	73.6	74.0	61.8	75.0	74.6	S.E. . . .	Air.	C. & C. S. 1	To westward.
	9	.063	69.0	64.5	57.0	66.0	66.0	Northward .	Air.	0	
	Midn't.	.062	67.0	60.6	55 0	62.8	63.0	N.E. . . .	Air.	0	Max. temp., 83°.7; min., 53°.6.
12	7 A.M.	.077	59.0	51.5	49.7	54.0	54.8	S.W. . .	1	C. & C. S. 2	Fog rising from southwestward. Min. wet, 47°.3.
	9	.107	60.2	59.0	55.0	60.7	60.5	S.W. . .	1	C. & C. S. 4	Fog to westward.
	Noon.	.085	63.8	66.5	59.7	67.6	67.2	S.W. . .	1	C. & C. S. 3	
	3 P. M.	.069	67.9	70.0	60.8	71.7	71.1	S.W. . .	3	C. & C. S. 3	C. very light; smoky.
	6	.103	66.5	62.5	56.9	64.6	64.6	S.W. . .	3	C.S.,S.&K.S.6	
	9	.139	64.0	57.9	55.4	59.7	59.8	Westward .	1	S. & K. S. 9	
	Midn't.	.153	61.7	54.5	53.0	56.5	56.6	Calm . .	0	S. & K. S. 3	Max. temp., 72°.2; min., 52°.0.
13	7 A.M.	.134	60.2	54.7	52.7	56.0	56.2	Westward .	1	Fog 10 .	Min. wet, 51°.0.
	9	.161	59.4	54.5	52.9	56.5	56.4	S. westward	1	Fog 10 . .	
	Noon.	.156	60.3	58.6	55.0	60.2	60.0	S. westward	Air.	S. & N. S. 10	
	3 P. M.	.132	64.2	66.4	59.2	67.2	66.7	Eastward .	1	0	Smoky to westward and northward.
	6	.125	65.1	62.7	57.7	64.6	64.3	Calm . .	0	0	C. and C. S. about horizon.
	9	.104	62.8	56.4	53.8	58.2	58.5	N.E. . . .	Air.	0	
	Midn't.	.104	59.4	51.7	51.0	53.2	54.0	N.W. . .	1	S. 9 . . .	Max. temp., 68°.1; min., 54°.0.
14	6 A.M.	.090	58.3	52.0	51.0	53.5	53.4	Eastward .	Air.	Fog 10 . .	Min. wet, 50°.3.
	9	.085	59.0	57.0	53.8	57.2	57.0	N.E. . . .	Air.	Fog 10 . .	Fog lifting.
	Noon.	.075	61.1	59.5	55.4	62.5	62.4	Southward .	Air.	Fog 2 . .	Around horizon: smoky.
	3 P. M.	.058	65.2	69.2	60.4	69.3	68.6	S.W. . .	0	0	Smoky.
	6	.079	65.0	62.5	56.2	64.2	64.0	Calm . .	3	0	C. and C. S. to westward.
	9	.085	61.6	54.3	51.6	56.8	56.8	S.E. . . .	Air.	0	
	Midn't.	28.059	59.6	52.4	50.3	54.3	54.7	N.E. . . .	1	0	Max. temp., 69°.2; min., 52°.8.

APRIL, 1852—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Standard.	Register. Wet.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°				
15	7 A. M.	28.048	55.8	47.6	45.7	49.4	50.0	S.E. . . .	1	0	Smoky to west'd; C. & C. S. to south'd. Min. wet,
	9	.056	57.8	60.1	54.8	58.8	58.7	Southward .	Air.	0	Do. do. [43°.1.
	Noon.	.060	63.8	70.8	60.4	69.8	69.1	Calm . .	0	0	Do. do.
	3 P. M.	.059	68.1	74.5	60.7	73.2	72.6	S.W. . .	3	C. & C. S. 3	To southwestward and west.
	6	.121	66.2	62.4	56.1	64.4	64.4	S.W. . .	2 & 3	C. & C. S. 3	Scattered.
	9	.163	63.2	58.1	53.7	59.7	59.7	Calm . .	0	0	
	Midn't.	.150	61.2	54.1	50.8	55.8	56.2	N.W. . .	0	C. & C. S. 2	Max. temp., 73°.2; min., 49°.7.
16	6 A. M.	.106	55.8	47.4	46.0	49.0	50.0	Calm . .	0	C. & C. S. 3	Min. wet, 45°.5.
	9	.139	58.2	57.4	53.2	58.0	57.8	S.W. . .	1	C. S. 1 . .	Smoky.
	Noon.	.111	62.8	69.2	60.1	67.8	67.3	S.W. . .	1	C. S. & C. 3	Do.
	3 P. M.	.099	67.2	73.8	61.5	74.0	73.3	S.W. . .	1	C.,CS.&KS.5	
	6	.106	66.6	65.3	57.1	67.0	66.6	S.W. . .	Air.	C. S. & S. 6	
	9	.105	63.5	58.8	53.4	60.4	60.4	N.E. . . .	Air.	C. & C. S. 4?	
	Midn't.	.050	60.0	52.8	48.6	54.3	54.4	Calm . .	0	C. & C. S. 3?	Late. Max. temp., 73°.8; min., 49°.4.
17	6 A. M.	.059	56.0	47.8	44.8	49.4	50.4	N.N.W. .	1	S.,C.K.&C.3	Min. wet, 44°.3.
	9	.071	56.5	53.7	49.0	54.5	54.5	N.E. . . .	Air.	C.K., S. & C. 1	Smoky to westward.
	Noon.	.086	60.0	64.3	54.6	64.3	63.7	S'd and w'd	1	C. 1 . . .	C. & K. S. over Andes.
	3 P. M.	.090	62.6	64.6	54.5	66.0	65.6	S. westward	3	K. & C. K. 1	Smoky to westward; ditto.
	6	.130	61.2	55.5	50.8	57.7	57.8	S.W. . .	2 & 3	C., S. & K. S. 8	K. S. around horizon. C. light.
	9	.153	57.0	51.2	48.8	52.5	53.0	E.S.E. . .	2 & 3	S. 10 . . .	
	Midn't.	.162	58.1	50.4	48.3	51.8	52.2	Northward .	1	S. 10 . . .	Max. temp., 66°.5; min., 50°.2.
18	6 A. M.	.207	58.2	50.1	48.0	51.1	51.3	N. eastward	Air.	S. & K. S. 10	Min. wet, 46°.4.
	9	.229	57.6	56.8	51.7	57.3	57.3	W.S.W. .	1	S. & K. S. 10	
	Noon.	.224	59.7	63.3	55.1	63.4	63.0	S.W. . .	1	S. & K. S. 9	
	3 P. M.	.226	61.6	65.6	55.5	67.7	67.7	S.W. . .	2	C. S. & K. S. 8	
	6	.216	62.0	59.5	53.2	61.2	61.2	S.W. . .	1	S. & C. S. 4?	
	9	.182	59.3	53.0	49.3	54.7	54.7	N.E . . .	Air.	0	
	Midn't.	.144	57.2	48.3	46.4	50.4	50.6	Calm . .	0	0	Taken at 1 o'clock. Max. temp., 68°.2; min., 40°.2.
19	6 A. M.	.108	53.0	46.1	44.2	47.0	48.2	N.E. . . .	Air.	0	Snow heavy on Andes. Min. wet, 41°.6.
	9	.111	55.0	55.4	50.7	54.9	55.0	N.W. . .	1	0	
	Noon.	.097	60.3	66.4	56.8	66.3	65.7	S.W. . .	1	0	
	3 P. M.	.068	64.4	71.3	57.6	70.6	69.7	S.W. . .	3	0	
	6	.088	64.0	62.3	53.8	63.8	63.5	Calm . .	0	0	
	9	.086	60.7	54.6	51.0	56.7	57.0	N.W. . .	Air.	0	
	Midn't.	.080	58.7	51.1	48.1	53.3	53.7	S.W. . .	Air.	C. & C. S. 1	Bank of clouds on horizon. Max. temp., 71°.5; min., 45°.7.
20	7 A. M.	.151	53.0	47.2	44.8	48.2	49.0	Calm . .	0	C.,C.K.&C.S.5	Min. wet, 42°.0.
	9	.191	54.4	52.2	50.2	53.5	53.7	S.W. . .	Air.	K., C.K. & C. 2	K. around horizon.
	Noon.	.202	57.7	59.0	53.3	60.0	59.7	S.W. . .	2	S. & C. K. 8	
	3 P. M.	.199	60.0	61.4	54.7	62.9	62.5	S.W. . .	3	C.S.,C.K.&K.5	
	6	.196	59.6	56.7	52.5	58.5	58.5	S.W. . .	Air.	C.K., K. & C. 6	
	9	.245	57.2	52.3	49.7	53.7	53.8	Eastward .	Air.	S. (?) 10 . .	
	Midn't.	.259	57.0	53.2	50.4	54.2	54.2	Eastward .	Air.	S. 10 . . .	Max. temp., 63°.2; min., 46°.7.
21	6 A. M.	.254	56.7	50.0	48.0	51.1	51.7	N.E. . . .	Air.	C. S. 1 . .	Min. wet, 47°.7.
	9	.273	57.0	57.8	53.0	57.8	57.7	Eastward .	1	0	K. S. to southwestward; smoky.
	Noon.	.271	60.3	63.8	55.7	65.3	64.8	S.W. . .	2 & 3	C. & C. S. 2	C. S. to southward and eastward; smoky.
	3 P. M.	.229	68.4	68.7	57.5	68.1	67.4	S.W. . .	2	C. & C. S. 4	C. very light; smoky.
	6	.216	63.2	61.8	54.2	63.0	63.0	S.W. . .	Air.	C.S., C.& S.5	
	9	.181	61.0	56.2	51.8	57.8	57.8	N.E. . . .	Air.	C. & C. S. 6	
	Midn't.	28.148	59.3	54.2	50.7	55.6	55.8	Northward .	Air.	C. & S. 7 .	Max. temp., 66°.2; min., 51°.4.

APRIL, 1853—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Standard.	Register. Wet.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°				
22	7 A. M.	28.117	56.2	51.3	48.6	52.1	52.6	S.W. . .	1	S.,C.&K.S.9	Clear to westward. Min. wet, 46°.0.
	9	.144	56.2	57.3	51.9	57.1	56.8	Southward .	1	S.,C.&K.S.10	Clear to northwestward.
	Noon.	.103	59.0	64.5	56.0	63.8	63.3	S.W. . .	1	S. & K. S. 10	Do.
	3 P. M.	.071	61.0	64.9	56.2	65.1	64.6	S.W. . .	2	S. & K. S. 10	
	6	.094	60.7	58.4	53.7	59.3	59.3	N.E. . .	Air.	S. & K. S. 10	Clear to northward.
	9	.073	59.4	55.0	51.7	56.6	56.6	N.E. . .	Air.	S. & K. S. 10	
	Midn't.	.081	58.3	54.0	51.2	55.1	55.3	S.E. . . .	Air.	S. & K. S. 10	Max. temp., 69°.7; min., 52°.2.
23	7 A. M.	.085	56.4	52.9	49.8	52.7	53.0	Calm . .	0	S. & K. S. 10	Min. wet, 48°.7.
	9	.090	57.2	58.3	53.4	57.3	57.3	Northward .	Air.	S. & K. S. 10	
	Noon.	.090	58.7	61.6	54.5	61.8	61.5	S.W. . .	1	S. & K. S. 10	Earthquake at 11h. 37m. 53s. A. M. Thirty-five miles
	3 P. M.	.060	59.6	60.5	54.2	61.1	61.1	S.W. . .	1	S. & K. S. 10	to southward there was a long rumbling noise that
	6	.035	57.9	54.0	51.2	55.2	55.4	Southward .	Air.	S. & K. S. 10	lasted for 20 seconds without perceptible shock.
	9	.035	58.0	52.0	50.0	53.0	53.4	N. eastward	Air.	S. & K. S. 7	J. M. G.
	Midn't.	.026	57.5	51.0	49.3	52.9	52.3	Calm . .	0	S. & K. S. 10	Max. temp., 62°.4; min., 51°.7.
24*	6 A. M.	.062	55.5	50.6	49.2	51.1	51.6	N. eastward	Air.	S. & N. S. 10	Min. wet, 48°.9. Probably mist during the night;
	9	.069	55.7	54.1	50 6	54.0	54.0	N.E. . . .	1	S. & K. S. 10	the ground at 6 A. M. moist.
	Noon.	.055	58.6	64.1	54.7	65.3	65.1	S.W. . .	1	K.S.,K.&C.K.6	Rain began about 2 P. M.
	3 P. M.	.048	60.0	62.1	54.7	61.7	62.1	S. eastward	1	Rain . .	Slight.
	6	.129	59.0	55.7	53.0	56.7	56.7	E. . . .	1	Rain . .	Moderate.
	9	.115	58.0	54.0	51.8	54.8	54.8	N.E. . . .	1	Rain . .	Sky clear in part.
	Midn't.	.129	56.3	51.5	50.3	52.3	52.7	N.E. . . .	2	S. & N. S. 3	Late. Max. temp., 66°.3; min., 51°.2.
25†	7 A. M.	.157	54.0	49.4	48.0	49.7	50.4	N. eastward	Air.	S. & N. S. 10	Min. wet, 47°.0.
	9	.179	55.2	54.1	52.0	54.1	54.2	N.E. . . .	Air.	Rain . . .	
	Noon.	.174	57.0	60.1	55.3	60.8	60.3	Calm . .	0	K. & N. 9 .	
	3 P. M.	.174	58.0	59.6	56.3	60.0	59.6	Calm . .	0	K.S.& N.S.10	Clear to westward.
	6	.191	58.5	57.0	54.8	57.6	57.6	Calm . .	0	N. & N. S. 10	Occasional drops of rain.
	9	.214	58.2	55.6	54 0	56.0	56.2	Calm . .	0	Rain . . .	
	Midn't.	.210	57.4	54.6	53.3	54.8	55.2	Calm . .	0	Rain . . .	Max. temp., 62°.1; min., 49°.6.
26‡	7 A. M.	.237	56.5	52.2	51.0	52.8	53.3	N.E. . . .	Air.	Fog 10 . .	Min. wet, 46°.8.
	9	.271	57.0	57.9	55.7	58.3	58.3	N.E. . . .	Air.	K. & C. K. 6	K. heavy over Andes.
	Noon.	.254	59.8	64.7	58.2	65.1	64.6	S.W. . .	1	K. & C. K. 7	Snow over near mountains to eastward.
	3 P. M.	.249	61.5	62.0	55.0	63.7	63.5	S.W. . .	3	K.,K.S.&C.K.7	Rain over Andes?
	6	.294	59.7	52.7	53.1	58.4	58.6	Calm . .	0	K. & K. S. 10	Clear in spots.
	9	.316	58.8	54.0	52.0	55.3	55.8	Calm . .	0	K., C. K. & C. 2	Around horizon.
	Midn't.	.261	54.7	47.7	46.8	48.7	50.3	Eastward .	Air.	0	Taken at 1 o'clock. Max. temp., 66°.8; min., 50°.3.
27§	6 A. M.	.219	51.0	44.3	43.3	45.0	46.3	N.E. . . .	Air.	C. & C. S. 5	Min. wet, 41°.7.
	9	.232	53.6	56.4	51.7	54.1	55.0	N.E. . . .	Air.	C. & C. S. 9	
	Noon.	.226	57.6	63.0	56.0	63.2	63.4	S.W. . .	1	S. & C. S. 9	Clouds moving from northwestward.
	3 P. M.	.198	60.1	66.5	57.4	66.4	66.4	S.W. . .	1	C.,C.S. & S. 9	K. over mountains.
	6	.212	60.7	60.1	54.4	61.3	61.3	Southward .	Air.	C.,C.S. & S. 4	Mostly to southward.
	9	.201	57.2	52.9	50.4	53.8	54.0	N. eastward	Air.	S.,C.K.&C.S.5	
	Midn't.	28.169	55.7	50.3	48.3	51.3	52 2	N.E. . . .	Air.	S.,K.S.&C.S.4	Max. temp., 66°.7; min., 45°.2.

* Rain-gage bottle broken at 6h. 30m. P. M., and some of the rain probably lost. Rain fell during the day, 0.240 *in.*

† During the whole day rain at short intervals. Quantity of rain that fell during the day, 0.361 *in.*

‡ Clouds during the afternoon moving from northwest. Quantity of rain during the day too small to measure.

§ For about 20 minutes before sunrise there were rays of light to the westward radiating from a point opposite the sun's place of rising—like a sunset. E. R. S.

APRIL, 1852—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Register.			Direction.	Force.		
					Wet.	Max.	Min.				
		Inches.	°	°	°	°	°				
28	6 A. M.	28.217	53.0	46.6	45.4	47.3	48.8	N.E. . . .	Air.	C.,C.K. & S. 1	About horizon. Min. wet, 45°.2. About 6h. 30m. A.
	9	.241	54.6	55.3	52.6	55.1	55.5	S.W. . .	Air.	S.,C.S. & C. 3	To S'd and W'd. [M. rays of light to westward, the
	Noon.	.226	58.8	64.8	57.0	64.0	63.7	S.W. . .	1	S.,C.S. & C. 2	To southward. [same as those of yesterday morn-
	3 P. M.	.212	60.4	62.2	56.7	64.6	64.4	W.S.W. .	3 & 4	0	Few K. over Andes. [ing.
	6	.223	59.3	54.0	52.2	56.3	56.7	Southward .	1	0	
	9	.257	57.2	51.7	49.8	52.2	53.2	N.W. . .	Air.	Fog 9 . .	Fog rising from southwest.
	Midn't.	.240	56.4	52.2	50.6	52.8	53.6	N.W. . .	Air.	Fog 10 . .	Max. temp., 67°.6; min., 43°5.
29	7 A. M.	.178	55.0	49.0	47.3	49.7	50.4	E. by S. . .	Air.	Fog 10 . .	Min. wet, 47°.1.
	9	.168	54.6	53.6	50.6	54.1	54.6	Calm . .	0	Fog 10 . .	
	Noon.	.158	56.6	61.5	55.2	62.7	63.0	S.W. . .	Air.	S.,C.S.&C.K.9	
	3 P. M.	.171	59.0	62.8	56.7	62.8	62.7	S.W. . .	1 & 2	S. & K. S. 10	Moving from northwestward.
	6	.191	59.3	58.1	53.7	58.7	59.0	E. . . .	1	S. & K. S. 10	
	9	.214	58.3	54.8	52.3	55.6	56.3	N.E. . .	Air.	C.K. & C.S.4	To westward.
	Midn't.	.213	56.8	51.0	49.7	51.7	52.8	Calm . .	0	0	South to southwestward. Max. temp., 63°.2; min., 50°.0.
30	6 A. M.	.141	51.7	45.2	45.0	45.6	47.4	Calm . .	0	C. & C. S. 1	To S.W'd. Min. wet, 43°.0. About 6h. 30m. A. M.
	9	.153	54.8	57.5	53.9	56.7	57.3	S.W. . .	1	0	C. & C. S. to S.W'd. [quite brilliant appearance of
	Noon.	.140	60.3	68.5	59.0	66.7	66.7	Calm . .	0	C.,K.S.&C.10	C. light. [rays to westward as before de-
	3 P. M.	.143	65.2	73.8	59.9	72.7	72.5	S.W. . .	1	C.S.,S.& C.10	Clear to eastward. [scribed; some one or two of
	6	.170	63.4	63.1	56.9	64.3	64.3	Eastward .	Air.	S.,C.S.&K.S.10	Do. in spots to W'd. [the beams could be traced en-
	9	.189	59.8	55.2	51.8	56.7	57.2	Eastward .	Air.	C. & C. S. 7	[tirely across the heavens to
	Midn't.	28.181	56.8	50.1	48.4	51.8	52.8	N.E. . . .	Air.	C. 3 . . .	[the place of the sun's rising. Very thin. Max. temp., 72°.9; min., 46°.5.

MAY, 1852.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Register.			Direction.	Force.		
					Wet.	Max.	Min.				
		Inches.	°	°	°	°	°				
1	6 A. M.	28.181	53.4	46.9	46.0	47.8	49.5	N.E. . . .	Air.	C. & C. S. 10	Around horizon. Min. wet, 44°.3.
	9	.191	55.4	56.1	52.0	55.7	56.1	S.S.E. . .	Air.	0	Smoky to westward and C. S. to eastward.
	Noon.	.181	60.7	67.9	58.6	67.9	67.6	S.W. . .	1	0	Smoky.
	3 P. M.	.141	65.3	73.6	57.7	72.8	72.3	S.W. . .	1	0	Do. do.
	6	.148	64.3	65.0	57.0	65.8	65.8	Calm . .	0	0	Do.; C. S. to westward.
	9	.152	60.5	55.9	52.3	57.2	57.7	E. . . .	Air.	0	
	Midn't.	.140	58.3	52.0	49.2	53.2	54.1	N.E. . . .	Air.	0	Max. temp., 72°.7; min., 48°.4.
2	6 A. M.	.109	55.1	46.6	44.7	47.7	49.3	N.E. . . .	Air.	C. & C. S. 1	To southwestward. Min. wet, 43°.6.
	9	.155	56.2	60.5	54.6	59.7	60.1	Calm . .	0	0	C. to southwestward; smoky.
	Noon.	.140	61.8	69.8	57.8	67.8	67.2	S.W. . .	Air.	0	S. to southwestward; do.
	3 P. M.	.103	66.3	73.8	59.3	72.2	71.5	S.W. . .	1	0	Do. do.
	6	.131	65.0	63.0	56.0	64.6	64.4	N.E. . . .	2	0	C. and C. S. to west and southwest.
	9	.148	61.3	56.5	53.5	58.0	58.3	N.E. . . .	Air.	0	
	Midn't.	28.125	58.4	52.9	51.3	54.0	54.8	W. . . .	1	0	Late. Max. temp., 72°.2; min., 48°.4.

MAY, 1853—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Register.			Direction.	Force.		
					Wet.	Max.	Min.				
		Inches.	°	°	°	°	°				
*3	6 A. M.	28.105	56.2	52.4	50.2	53.2	54.0	N.W. . .	1	S. & N. S. 10	Clouded up suddenly about 1 A. M. Min. wet, 42°.0.
	9	.119	56.1	56.1	52.0	56.7	56.8	W.N.W. .	1	S. & N. S. 10	Clouds from westward.
	Noon.	.102	57.6	55.4	51.8	56.4	57.2	W. . . .	2	S. & N. S. 10	Few drops of rain about 1 P. M.
	3 P. M.	.132	57.1	52.1	49.2	53.0	53.5	N.E. . . .	1	S. & N. S. 10	Clouds from W.S.W.
	6	.166	57.8	50.6	48.4	51.0	52.0	N.E. . . .	1	S. & N. S. 10	Rain commenced at 3h. 45m. P. M.
	9	.216	58.0	48.1	45.0	49.0	50.2	N.E. . . .	1	S. & N. S. 10	Clear to westward.
	Midn't.	.249	55.7	45.3	42.6	46.0	47.7	Northward .	Air.	S. & N. S. 10	Do.; clouds from N. westward. Max. temp., 61°.3; min., 47°.2.
4	6 A. M.	.334	57.7	38.4	38.0	39.1	42.0	E.S.E. . .	Air.	0	Snow low down on the Andes, not heavy. Min. wet, 37°.0.
	9	.347	55.6	46.7	43.8	47.2	48.5	Calm . .	0	0	
	Noon.	.323	58.6	55.0	48.6	55.5	56.0	Westward .	1	0	
	3 P. M.	.293	60.6	59.3	48.0	58.8	58.8	S.W. . .	1	0	
	6	.300	59.6	51.5	45.1	53.1	53.7	Eastward .	Air.	0	Thin C. to westward.
	9	.291	58.8	44.4	42.0	45.4	42.6	N.E. . .	Air.	0	
	Midn't.	.280	60.8	38.5	37.0	39.7	42.0	Eastward .	Air.	0	Max. temp., 59°.8; min., 41°.5.
†5	6 A. M.	.252	50.7	35.6	33.8	36.2	39.1	N.E. . .	Air.	0	Frost on the roofs. Min. wet, 33°.7.
	9	.263	52.2	47.2	43.3	46.3	48.0	N.E. . .	Air.	0	Smoky to westward.
	Noon.	.234	59.8	60.5	50.5	58.3	58.7	S.W. . .	Air.	0	Do.
	3 P. M.	.190	62.4	67.4	50.1	64.7	64.6	S.W. . .	Air.	0	Do.; C. and C. S. to westward.
	6	.193	62.0	56.5	46.8	57.8	58.4	E. . . .	Air.	0	C. and C. S. to westward and northwestward.
	9	.177	59.0	46.0	42.2	47.8	49.7	Southward .	Air.	0	Scattered C.
	Midn't.	.152	59.0	42.9	39.6	44.0	46.1	N.E. . .	1	C. & C. S. 5	Max. temp., 65°.3; min., 39°.7.
6	7 A. M.	.054	52.7	38.6	36.2	39.1	42.0	N.E. . . .	Air.	0	C. and C. S. to east. Min. wet, 35°.5.
	9	.123	55.3	52.0	44.0	49.4	50.6	S. westward	Air.	0	Do.; smoky.
	Noon.	.131	62.6	66.3	53.2	63.1	63.2	Calm . .	0	0	Do. do.
	3 P. M.	.126	65.3	73.4	53.9	71.1	70.7	S.W. . .	1	0	Do. do.
	6	.141	63.9	59.8	50.2	60.8	61.5	Eastward .	Air.	0	S. and C. S. to west.
	9	.123	60.0	50.6	45.0	51.8	53.2	N.N.E. . .	1	0	
	Midn't.	.128	58.3	46.4	42.3	47.4	49.2	N.E. . .	1	0	C. S. to east. Max. temp., 71°.1; min., 41°.8.
‡7	6 A. M.	.116	54.0	39.2	36.5	40.0	42.7	S.E. . . .	Air.	C. & C. S. 2	Around horizon. Min. wet, 35°.2.
	9	.137	56.2	52.4	47.1	51.2	52.2	Calm . .	0	C. & C. S. 2	Do.; smoky.
	Noon.	.194	59.7	68.5	53.2	64.7	64.3	Calm . .	0	C.S.,C.K.&S.6	
	3 P. M.	.079	63.3	73.6	55.7	72.1	71.6	W.S.W. .	3	S.,C.S.&K.S.9	
	6	.079	62.3	61.7	51.3	62.7	63.0	Calm . .	0	S.,C.S.&C. 3	
	9	.059	60.2	52.9	47.8	54.3	55.4	Calm . .	0	S.,C.S.&C. 4	
	Midn't.	.046	60.0	49.6	45.3	50.6	52.0	N.W. . .	Air.	S.,CS.CK.&S. 9	Clouds moving from N.N.W. Max. temp., 72°.0; min., 41°.7.
8	6 A. M.	.032	57.0	45.0	42.3	45.8	47.5	N.W. . .	1	S.,C.S.&C. 8	Min. wet, 41°.7.
	9	.073	57.2	53.9	47.8	52.8	53.7	N.W. . .	1	S. & K. S. 10	
	Noon.	.117	58.2	56.2	50.0	57.3	57.7	S.W. . .	3	S. & K. S. 10	Clouds moving from northwestward.
	3 P. M.	.130	58.2	56.8	50.2	57.3	58.0	S.W. . .	1	S. 10 . .	
	6	.142	57.9	51.8	48.0	52.8	53.7	Eastward .	Air.	S. 10 . .	
	9	.144	60.0	50.0	46.7	50.8	51.8	N.E. . .	1	S. 10 . .	
	Midn't.	28.141	58.3	49.0	45.3	49.2	50.8	N.E. . .	1	S. & N. S. 10	Late. Max. temp., 59°.3; min., 47°.0.

* About 1h. A. M. rain commenced, and continued at intervals through the day; quite light generally; wind cold. To-day, for the first time, a fire was made in the office, (about 4 P. M.,) which will account for the difference between the attached thermometer and the others in the open air.

Quantity of rain during day, 0.130 in.

† At 6h. 30m. A. M. rays to westward, in the same part of heavens as on former occasions.

‡ At 6h. 40m. A. M. again saw rays to westward, well-defined and in all respects the same as before, except that the point of convergence was, perhaps, slightly more to the southward, as the sun is going to northward. At 11h. 46m. 30s. P. M. earthquake—smart, sudden shock, accompanied with noise.

MAY, 1852—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Register.			Direction.	Force.		
					Wet.	Max.	Min.				
		Inches.	°	°	°	°	°				
9	6 A. M.	28.196	56.3	47.8	45.8	47.9	49.7	Calm . .	0	S. & N. S. 10	Snowing (?) over Andes. Min. wet, 43°.0.
	9	.245	57.7	52.1	48 0	51.8	52.7	Calm . .	0	S. & K. S. 10	Clear to northwestward.
	Noon.	.227	59.5	63.5	54.2	62.4	62.0	S. westward	1	S.,K.S.& C.S.9	Do.
	3 P. M.	.221	64.0	64.6	53.8	64.6	64.3	E.N.E. . .	1	S. & K. S. 9	Do.
	6	.231	63.0	59.2	50.6	59.7	60.2	S.E. . . .	Air.	S. & K. S. 5	
	9	230	60.9	51.4	47.0	52.6	53.7	Calm . .	0	S. & C. S. 1	To southward.
	Midn't.	.213	61.0	46.2	43.0	47.7	49.8	N.E. . . .	Air.	0	Max. temp., 64°.6; min., 48°.8.
10	7 A. M.	.143	54.3	43.5	40.8	44.0	46.3	Calm . .	0	0	C. to westward. Min. wet, 40°.0. Rays to westward
	9	.163	55.6	55.2	48.2	53.2	54.2	Calm . .	0	0	Very smoky. [before sunrise; disappeared about
	Noon.	.140	59.8	69.0	56.4	66.1	65.9	N.W. . .	1	0	Do. [6h. 50m.; indistinct; point of con-
	3 P. M.	.127	63.4	74.1	58.2	70.2	70.0	W.S.W. .	Air.	0	Do. [vergence the same as on the 7th.
	6	.135	63.0	62.0	53.7	63.3	63.6	E.S.E. . .	Air.	0	C. and C. S. to westward.
	9	.135	60.0	53.7	48.7	55.4	56.3	N.E. . . .	1	0	
	Midn't.	.103	57.0	49.0	44.0	49.7	51.3	S. . . .	1	0	Max. temp., 71°.4; min., 45°.7.
*11	6 A. M.	.072	54.3	45.4	41.5	45.8	48.0	N.E. . .	1	0	C. S. to southwest. Min. wet, 40°.0.
	9	.100	56.0	57.0	50.0	55.3	56.2	N.E. . . .	Air.	0	Do.; smoky.
	Noon.	.099	63.0	72.6	57.7	68.5	68.3	Calm . .	0	0	Smoky.
	3 P. M.	.081	67.8	77.9	58.7	75.1	74.7	S.W. . .	1	0	Do.
	6	.075	66.7	65.5	56.0	66.7	66.7	E. . . .	Air.	0	C. and C. S. to westward.
	9	.075	62.8	60.9	52.2	61.1	61.2	W.N.W. .	2	0	
	Midn't.	.062	61.0	52.7	47.8	54.6	55.4	N.E. . . .	1	0	Max. temp., 75°.1; min., 46°.4.
†12	6 A. M.	.035	56.7	45.5	43.6	47.1	49.0	Calm . .	0	0	S. and C. S. to westward. Min. wet, 43°.0.
	9	.044	58.2	54.3	50.2	54.5	55.2	Eastward .	1	0	Do. do.; smoky.
	Noon.	.018	60.3	60.2	54.7	61.9	61.8	S.W. . .	3	0	Do. do. do.
	3 P. M.	.009	60.8	54.9	51.7	58.1	58.5	S.W. . .	3	C.S.,C.& K.S.7	S. heavy around base of Andes.
	6	.053	58.8	50.7	49.2	51.8	53.1	S.W. . .	2 & 3	S. 10 . .	Clear to west. S. heavy.
	9	.084	59.4	51.4	49.8	52.5	53.5	S.W. . .	1	S. 10 . . .	
	Midn't.	.073	60.7	51.0	49.9	51.0	52.7	S. eastward.	1	S. 10 . .	Ground damp. Max. temp., 69°.1; min., 48°.3.
13	6 A. M.	.074	60.2	49.5	48.0	50.6	49.5	Northward .	Air.	S. & N. S. 10	Moving from northwestward. Min. wet, 46°.5.
	9	.125	59.3	54.5	50.5	54.5	55.0	N. eastward	1	S. & N. S. 10	Clear in spots.
	Noon.	.132	58.8	56.8	51.7	57.0	56.8	Southward .	Air.	S. & N. S. 10	Moving from northwest.
	3 P. M.	.157	61.7	57.2	52.1	57.6	57.4	Eastward .	Air.	S. & N. S. 10	Do. do.
	6	.148	60.7	54.0	50.6	54.8	54.8	N. westward	1	S. & C. S. 6	
	9	.212	60.0	49.8	47.6	51.1	51.5	Southward .	Air.	S. & C. S. 4	
	Midn't.	.215	59.4	48.2	46.5	49.3	48.8	N.E. . . .	Air.	S. & C. S. 9	Max. temp., 60°.5; min., 49°.0.
14	6 A. M.	.205	57.2	49.0	47.0	49.8	48.7	Calm . .	0	S. & N. S. 10	From northwest. Min. wet, 44°.9.
	9	.219	57.1	51.2	48.6	51.5	51.7	Calm .	0	S. & N. S. 10	Do.; clear to W'd. As there was a large air
	Noon.	.212	58.2	60.5	53.0	60.3	60.0	N.E. . . .	1	S.,K.S.C K.S.10	Do. [bubble in the column of the min. regis-
	3 P. M.	.218	61.9	60.7	54.0	61.0	60.6	Eastward .	Air.	S. & K. S. 10	Do. [ter ther. early in the morning, the min.
	6	.226	63.6	54.6	51.4	55.8	55.7	N.E. . . .	Air.	S. & C. S. 8	[temp. could not be determined.
	9	.260	62.3	51.5	49.3	52.7	52.7	N.E. . . .	1	S. & C. S. 10	A few stars visible, but dim and obscure.
	Midn't.	28.234	59.7	49.5	48.2	50.1	50.7	N.E. . . .	1	S. 1	To eastward over mountains. Max. temp., 61° 5.

* Same appearance of rays. At 6h. 30m. they were very distinct. The bands of light were so broad and well defined as to give the intervening shadows the appearance of black streamers on a rose-colored ground. One of them passed almost to the place of the sun's rising: point of convergence slightly further to southward.

† Rays in the west more to southward than heretofore. They first appeared about 6h. 30m., and disappeared at 6h. 55m., preceded and followed by rose-colored light. When first seen, the point of convergence was above the horizon, but lowered as the sun rose. The effect was much heightened by a bank of S. and C. S. clouds on the horizon, which was illuminated (the light coming apparently from behind the cloud) exactly as if by the sunset. Very brilliant—some of the intervening dark lines (which, as usual, were darker to the southward than to the northward of the zenith) could be traced almost to the eastern horizon.

MAY, 1852—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Standard.	Register. Wet.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°				
15	7 A. M.	28.247	58.0	51.8	47.7	52.0	52.2	E. by S. .	1	S. & K. S. 10	Min. wet, 46°.2.
	9	.255	58.3	56.7	52.0	56.0	55.8	N.W. . .	Air.	S. 10. . .	
	Noon.	.261	59.3	60.0	53.7	60.2	60.0	Calm . .	0	S. 10. . .	
	3 P. M.	.256	61.2	63.0	54.1	63.2	62.6	E. . . .	Air.	S. & C. S. 1	K. over Andes.
	6	.271	60.5	54.2	49.0	56.5	56.4	S.E. . . .	Air.	S. & C. S. 8	C. S. thin.
	9	.300	59.8	50.5	47.5	51.8	52.3	N.E. . . .	Air.	S. & C. S. 4	Do.
	Midn't.	.299	62.5	49.0	46.4	50.0	50.5	N.E. . .	1	S. & C. S. 10	Max. temp., 63°.3; min., 50°.5.
16	6 A. M.	.238	56.3	49.7	46.4	49.7	49.8	Calm . .	0	S. 10. . .	Clear to westward. Min. wet, 42°.2.
	9	.248	57.0	56.2	51.0	55.3	55.0	Calm . .	0	C. S. & S. 5	Thin.
	Noon.	.294	67.0	65.8	55.8	63.8	63.8	N.W. . .	Air.	C. & C. S. 5	Do.
	3 P. M.	.165	64.6	70.5	56.2	68.2	65.0*	S.W. . .	1	C. & C. S. 5	Do. *Air bubble in thermometer.
	6	.159	63.0	60.0	52.0	61.3	60.5	Calm . .	0	C. & C. S. 3?	Do.
	9	.156	58.7	52.4	47.6	54.3	52.7	Calm . .	0	0	C. S. around horizon.
	Midn't.	.145	58.7	48.4	42.2	68.8	48.5	N.E. . . .	Air.	0	Max. temp., 68°.8; min., 48°.5
17	7 A. M.	.073	58.1	43.9	40.8	44.7	43.8	Calm . .	0	0	Few C and C. S. about horizon. Min. wet, 39°.7.
	9	.077	57.4	56.3	48.2	54.4	53.0	Calm . .	0	0	Do. do.
	Noon.	.045	62.2	70.0	55.3	66.7	64.2	S.W. . .	1	0	Do. do.
	3 P. M.	.030	64.3	74.1	56.1	70.6	68.5	S.W. . .	1	0	Do. do.
	6	.054	63.4	61.2	52.0	63.0	61.6	S. eastward.	Air.	0	At 7 a. m., rays to westward, but indistinct and
	9	.066	60.7	52.0	47.6	54.0	53.2	Calm . .	0	0	fading.
	Midn't.	.070	58.7	50.9	46.6	52.0	51.4	N.W. . .	Air.	S. & C. S. 4	Max. temp., 71°.3; min., 43°.3.
18	7 A. M.	.178	57.2	50.3	48.6	50.8	49.8	Calm . .	0	Fog 10 . .	Min. wet, 45°.0.
	9	.180	56.7	52.3	50.4	52.8	51.8	Calm . .	0	Fog 10 . .	
	Noon.	.190	60.3	59.9	54.6	62.1	61.3	N.W. . .	2	C. & C. S. 7	
	3 P. M.	.196	63.7	60.7	54.7	61.8	60.6	N.W. . .	3	S.,C.&K.S.10	Clear in spots.
	6	.192	61.8	55.9	52.8	56.8	56.0	S. eastward	Air.	S. & K. S. 10	Do.
	9	.216	60.6	54.8	51.4	55.3	54.5	E.N.E. . .	1	S. 10. . .	
	Midn't.	.216	59.7	53.1	51.1	53.9	53.5	N.W. . .	2	S. & C. S. 7	C. S. thin. Max. temp., 63°.0; min., 49°.2.
19	6 A. M.	.209	57.4	50.6	48.5	51.2	51.0	Calm . .	0	S. 10. .	Clear spot to northwestward. Min. wet, 47°.3.
	9	.227	57.6	56.2	52.2	55.6	54.7	Calm . .	0	S. 10. . .	Do. do.
	Noon.	.219	59.8	60.6	54.2	61.2	60.1	S.W. . .	Air.	S. & K. S. 10	From northwest.
	3 P. M.	.201	60.4	60.7	53.8	61.1	60.0	S.W. . .	Air.	S. 10. . .	Do.
	6	.212	60.3	56.4	52.3	57.2	56.7	Calm . .	0	S. 10. . .	
	9	.213	61.4	54.8	50.8	55.1	54.4	N.E. . . .	Air.	S. 10. . .	
	Midn't.	.194	60.7	52.9	50.0	53.6	53.2	N.E. . . .	1	S. 10. . .	Max. temp., 62°.2; min., 50°.0.
20	7 A. M.	.141	58.2	50.5	48.4	50.8	50.7	S. eastward	Air.	S. 10. . .	Min. wet, 47°.2.
	9	.116	58.4	55.4	49.8	55.3	54.4	Eastward .	1	S. 10. . .	From northwest.
	Noon.	.069	61.4	61.1	54.6	60.8	50.7	Southward .	Air.	S. 10. . .	Do.
	3 P. M.	.005	52.8	60.9	54.7	61.6	60.4	Southward .	1	S. 10. . .	Do.
	6	.024	61.3	56.8	51.8	57.2	56.7	W.N.W. .	1	S. 10. . .	
	9	.030	62.6	53.5	50.6	54.1	53.7	Calm . .	0	S. 10. . .	
	Midn't.	.025	60.8	53.0	49.5	53.1	52.7	Calm . .	0	S. & C. S. 10	Max. temp., 62°.2; min., 49°.6.
21	7 A. M.	.033	57.7	49.9	47.5	50.2	50.2	Calm . .	0	S. 10. . .	From N.W.; very heavy over mountains. Min. wet,
	9	.104	57.3	52.0	49.6	52.3	52.0	S.E. . . .	1	S. & N. S. .	Upper stratum from N.W.; lower, S.E. [46°.6.
	Noon.	.155	60.1	50.8	49.8	51.4	50.7	N.E. . . .	1	Rain . . .	Began at 9h. 30m. Clouds from N.W.
	3 P. M.	.154	64.0	52.6	50.0	53.0	52.3	N.W. . .	Air.	Rain . . .	Light. Do.
	6	.145	61.4	49.8	47.8	50.3	50.0	E. . . .	Air.	Rain . . .	Moderate. Do.
	9	.131	62.0	48.5	46.7	49.0	48.7	N.E. . . .	1	Rain . . .	Do. Quantity of rain during the day 2.745 in.
	Midn't.	28.103	61.7	50.0	48.3	50.2	52.0	N.E. . .	1	Rain . . .	Hard. Max. temp., 62°.2; min., 48°.4.

MAY, 1852—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Stand ard.	Register. Wet.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°				
22	6 A. M.	28.102	57.2	51 5	46.0	51.0	50.8	N.W. . .	3	S. & N. S. 10	Gusty; dark and threatening to westw'd, with distant
	9	.230	60.1	49.2	45.7	49.1	49.0	N.W. . .	2	Rain . . .	Moderate; clouds from N. W'd. [thunder. Snow
	Noon.	.255	59.6	51.8	47 5	51.2	50.7	N.W. . .	1	Rain . . .	Do. do. [very low on the
	3 P. M.	.236	62.0	52.8	47.6	52 5	51.7	N.N.E. . .	2	K.S.&N.S. 9	Clear in spots; do. [mountains, both
	6	.247	59.6	48.0	45.6	48.9	48.8	Southward .	Air.	K. S. 5 . .	[to E'd and W'd.
	9	.271	57.9	45.9	44.4	46.5	46.7	N.E. . . .	1	S. & K. S. 3	Quantity of rain during day, 0.778 in. Min. wet, 41°.3.
	Midn't.	.252	54.5	42.0	41.6	42.8	43.7	Calm . .	0	0	S. about horizon. Max. temp., 55'.2; min., 43°.7.
23	6 A. M.	.213	49.5	37.1	37.0	37.8	39.0	N.E. . .	Air.	C. & C. S. 9	Clear to westward. At 6h. 45m. A. M. beautiful ap-
	9	.249	54.0	46.1	42.6	45.1	45.2	N.E. . .	1	S. & C. S. 10	pearance of rays to W'd and E'd at the same time.
	Noon.	.209	56 5	54.1	47.7	53.6	52.6	Airs . . .	Airs.	S. & C. S. 10	Clear streaks to westward. [Min. wet, 34°.7.
	3 P. M.	.163	62.6	54.5	49.2	54.3	53.6	Airs . . .	Airs.	S. & C. S. 10	Do. do.
	6	.135	60.6	47.6	46.0	48.3	48.4	Airs . . .	Airs.	S. & C. S. 10	Do. do.
	9	.140	59.0	44.9	43.8	45.6	45.8	Airs . . .	Airs.	S. & C. S. 10	
	Midn't.	.106	55.2	43.5	42.2	43.8	44.4	N.E. . .	1	S. 10 . .	One hour late. Max. temp., 55°.2; min., 37°.5.
24	6 A. M.	.109	54.8	43.0	41.7	43.3	43.5	Airs . . .	Airs.	S. & N. S. 10	From N.W.; snowing over Andes to E'd. Min. wet,
	9	.128	59.3	45.7	43.5	45.2	45.3	Airs . . .	Airs.	S. & N. S. 10	Do. do. [40°.9.
	Noon.	.097	58.6	49.6	46.2	49.2	48.7	N.E. . .	2 & 3	S. & N. S. 10	From northward.
	3 P. M.	.076	60.0	49.5	46.7	49.5	49.1	Airs . . .	Airs.	S. & N. S. 10	From north-northwestward; clear to westward.
	6	.046	57.3	48.1	43.7	47.9	47.8	Southward .	Air.	S. & N. S. 10	Clear to westward.
	9	.064	59.7	45.5	43.0	45.5	45.4	N.E. . .	1	S. 9 . . .	Do.
	Midn't.	.059	57.5	45.3	42.3	44.8	45.2	N.W. . .	1	S. & K. S. 5	Max. temp., 50°.7; min., 42°.7.
25	7 A. M.	.126	52.3	42.9	40.1	42.7	43.1	N.W. . .	1	S. 10 . . .	From N. W. Rain began at 7h. 30m. Min. wet, 37°.6.
	9	.253	57.0	45.4	41.7	44.8	44.8	N.E. . .	2 & 4	Rain . . .	Gusty.
	Noon.	.291	58.3	48.7	43.8	47.7	47.3	N.W. . .	1	S. & N. S. 10	From N. N. westward; breaking to westward.
	3 P. M.	.320	60.7	51.5	46.7	51.1	50.6	N.W. . .	Air.	S. & N. S. 10	Do. do.
	6	.325	58.8	45.9	43.5	46.0	46.2	N.E. . .	2	0	Few S. around horizon.
	9	.335	60.0	40.0	38.8	40.7	41.6	Eastward .	Air.	0	Quantity of rain for day, 0.967 in.
	Midn't.	.312	61.1	38.8	38.3	39.0	40.2	N.W. . .	Air.	0	Max. temp., 54°.5; min., 40°.2.
26	7 A. M.	.177	53.9	35 0	34.2	35.5	36.5	Airs . . .	Airs.	C. & C. S. 8	Slight frost on house-tops. At 6h. 50m. A. M. rays to
	9	.180	58.3	43.3	39.6	41.3	42.6	N.W. . .	1	S. & C. S. 10	Clear in spots. [westward. Min. wet, 34°.0.
	Noon.	.118	55.1	51.8	45.8	52.1	52.0	S.W. . .	Air.	S. & C. S. 9	Do.
	3 P. M.	.081	60.7	56.0	49.7	57.7	57.1	S.W. . .	Air.	S.,C.& K.S. 7	
	6	.066	57.6	48.8	46.0	49.6	49.6	N E. . .	1	S.,C. & K.S. 7	From northwest.
	9	.054	57.5	44.4	42.2	44.8	45.0	Southward .	Air.	S. & C. S. 10	
	Midn't.	28.040	57.6	42.4	40.5	42.6	43.2	N.W. . .	1	S. & C. S. 3	Around horizon; stars indistinct. Max. temp., 58°.3; min., 36°.0.
27	6 A. M.	27.972	50.0	37.8	36.8	38.0	39.2	Northward .	Air.	C. S. & C. 7	At 6h. 45m. A. M. rays to westward very beautiful.
	9	28.025	57.0	45.1	41.8	44.0	44.3	Airs . . .	Airs.	C. S. & C. 10	Smoky. [Min. wet, 35°.8.
	Noon.	.017	57.0	57.5	50.6	57.9	57.0	S.W. . .	1	C. & C. S. 10	Do.
	3 P. M.	.043	61.3	51.8	48.0	52.8	52.1	S.W. . .	1	S. 10 . .	
	6	.056	58.6	47 7	45.4	47.8	47.8	S.S.E. . .	1	S. & C. S. 8	
	9	.121	56.0	44 3	42.8	44.2	44.6	N.E. . .	2	CS.,C.K.&S. 4	From northwestward.
	Midn't.	.143	57.7	42.8	41.2	43.7	43.0	S.S.W. . .	1 & 2	S. & K. S. 10	Taken at 1h. 30m. A. M. Clear to eastward. Max. temp., 58°.5; min., 38'.6.
28	7 A. M.	.208	56.7	45.4	43.6	45.2	45.3	N.N.W. .	Air.	S.,K.S.&N S 8	From northwest; some rain during night; fine rain-
	9	.247	61.2	53.0	49.1	52.9	52.4	Airs . . .	Airs.	K. & K. S. 3	bow. Min. wet, 40°.9.
	Noon.	.253	58.8	56.8	51.3	59.3	58.3	W.S.W. .	1	K.,K.S.&C. 2	Scattered.
	3 P. M.	.253	60.7	59.4	53 0	59.6	58.2	S.W. . .	2	K. & C. K. 1	About horizon.
	6	.298	60.0	53.4	50.0	54.2	53.6	S. eastward	Air.	0	Few C. and K. about horizon.
	9	.292	58.0	46.5	45.2	47.5	47.7	S.S.E. . .	Air.	0	Quantity of rain during day, 0.171 in.
	Midn't.	28.296	61.9	42.8	41.5	43.6	44.0	Airs . . .	Airs.	0	Max. temp., 60°.7; min., 42°.8.

MAY, 1852—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Register.			Direction.	Force.		
					Wet.	Max.	Min.				
		Inches.	°	°	°	°	°				
29	6 A. M.	28.250	55.3	39.3	38.3	39.5	39.5	Calm . .	0	0	Few C. about horizon. Min. wet, 36°.8. Rays to
	9	.267	56.1	47.7	45.6	47.1	46.8	Calm . .	0	0	Do.; smoky to westward. [w'd before sunrise.
	Noon.	.256	58.1	58.5	52 3	57.0	55.6	S.W. . .	Air.	C. & C. S. 1	About horizon.
	3 P. M.	.201	60.0	62.2	54.3	61.7	60.3	Calm . .	0	C. & C. S. 8	
	6	.154	58 6	53.3	50.4	54.2	53.7	S.E. . .	Air.	C. & C. S. 1	Do.
	9	.159	57.2	46.8	45.1	47 8	47.8	N.E. . .	Air.	C. & C. S. 3	To northward and westward.
	Midn't.	.116	59.2	43.4	41.7	43.9	44.5	Calm . .	0	S. & C. S. 2	Max. temp., 62°.2; min., 40°.0.
30	6 A. M.	.067	52.0	41.5	39.5	41.1	42 0	N.E. . .	Air.	C. & C. S. 5	Min. wet, 37°.8.
	9	.098	58.0	49.2	45.7	48.1	47.8	Calm . .	0	C. & C. S. 3	
	Noon.	.039	59.3	62.6	53.8	61.7	59.8	S. westward	Air.	0	
	3 P. M.	.034	61.0	67 6	54.2	65.2	63.9	S.W. . .	1	0	C. and C. S. to southward.
	6	.066	60.2	56 3	50.3	57.2	56.5	Southward .	Air.	0	
	9	.065	60.7	49.2	45.6	50.3	50.3	Calm . .	0	C. & C. S. 1	Halo around moon. Max. temp., 65°.7; min., 41°.3.
	Midn't.										
31	6 A. M.	.047	56.4	41.7	40.7	42.1	42 6	N.W. . .	Air.	Fog 10 . .	Min. wet, 39°.4.
	9	.104	58.5	48.6	45.0	47.7	47.2	Calm . .	0	Fog 10 . .	Late; fog lifting.
	Noon.	.084	57.0	48.6	45.7	48.8	48.6	N.W. . .	Air.	Fog 10 . .	
	3 P. M.	.072	61 0	55.3	50.2	56.7	55.5	S.W. . .	Air.	C.S.,K.S.&C.S	
	6	.099	59 3	50.5	47.8	50.7	50.3	N.W. . .	1	S. & K. S. 10	
	9	.098	59.1	47.8	46.1	47.9	47 8	Eastward .	Air.	S. & K. S. 10	From northwest.
	Midn't.	28.122	59.8	45.7	44.6	46.0	46.2	N.E. . .	1	S. 10 . . .	Max. temp., 57°.0; min., 41°.6.

JUNE, 1852.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Register.			Direction.	Force.		
					Wet.	Max.	Min.				
		Inches.	°	°	°	°	°				
1	7 A. M.	28.114	53.5	47.6	45.5	47.5	47.4	Southward .	Air.	S. & K. S. 10	From northwest. Earthquake about 11h. 30m. A. M.
	9	.146	58.4	49.3	46.8	48.8	48.5	Southward .	Air.	S. & K. S. 10	Do. [At the *same time* felt quite a se-
	Noon.	.131	57.5	54.4	49.3	54.0	53.1	S.W. . .	Air.	S. & K. S. 10	Do. [vere shock at Valparaiso.
	3 P. M.	.130	58.0	53.0	49.7	53.1	52.4	S.W. . .	1	S. & N. S. 10	Raining slightly; clouds from N.W. J. M. G.
	6	.161	59.0	51.0	48.7	51.1	50.7	S.W. . .	1	Rain . . .	Hard.
	9	.223	58.2	48.9	47.4	49.2	48.8	Eastward .	2	Rain . . .	Hard; gusty. Min. wet, 43°.0.
	Midn't.	.342	61.0	45.8	43.0	46.3	46.2	N.E. . .	4	Rain . . .	Do. Quantity of rain during day, 2.318 in. Max. temp., 54°.7; min., 45°.0.
2	6 A. M.	.358	59.4	43.0	41.6	43.1	43.4	N. eastward	3	0	S. heavy about horizon. Min. wet, 41°.3.
	9	.359	58.8	47.9	45.3	47.7	47.3	N.E. . .	Air.	0	S. about the base of Andes.
	Noon.	.330	58.4	58.0	50.3	54.1	52.7	Calm . .	0	0	Do. do.
	3 P. M.	.270	62.0	57.3	52.3	57.7	56.3	W. . . .	1	0	S. to southward; scattered C.K.
	6	.235	61.7	51.2	49.2	51.6	51.3	Calm . .	0	0	
	9	.192	60.5	46.4	45.2	47.0	47.0	Calm . .	0	0	Quantity of rain during the day, 0.390 in.
	Midn't.	28.182	61.0	43.0	42.4	43.7	44.3	Calm . .	0	C.,CK.&C.S.1	Max. temp., 57°.7; min., 43°.3.

JUNE, 1853—Continued.

DAY.	HOUR.	BAROM-ETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
			Att'd.	Stand-ard.	Register.			Direction.	Force.		
					Wet.	Max.	Min.				
		Inches.	°	°	°	°	°				
3	7 A. M.	28.177	59.0	40 3	39.7	40.7	41.6	Northward .	Air.	0	Min. wet, 38°.9.
	9	.200	62.0	49.0	46.1	49.5	49.3	S.W. . .	Air.	0	Smoky to westward. C. to northward.
	Noon.	.129	60.6	58.0	53.2	57.3	55.7	N.W. . .	1	0	Do.
	3 P. M.	.095	64.4	61.8	54.3	60.5	59.0	S.W. . .	Air.	0	
	6	.129	62.6	55.2	51.4	55.6	54.8	S.E. . . .	1	0	
	9	.060	50.0	50.0	47.7	50.5	50.3	N.W. . .	1	C. & C. S. 6	From northwest.
	Midn't.	.039	61.2	46.5	45.1	47.0	47.2	N.W. . .	2	C. S. & C. 2	Mostly about eastern horizon. Max. temp., 61° 2; min., 41°.2.
4	7 A. M.	.062	57.6	46.0	44.7	46.0	46.0	Calm . .	0	C. S. & K. S. 7	[from N.W. Min. wet, 42°.9. Fog heavy around horizon; clouds
	9	.072	60.7	50.0	48.0	49.8	49.2	Eastward .	1	C. S. & K. S. 9	C. S. from N.W.; K. S. (lower stratum) from N.E.
	Noon.	28.014	60.6	60.2	52.2	59.1	57.7	N.W. . .	2	S. & K. S. 10	From northwest; clear spots to westward.
	3 P. M.	27.938	63.1	61.0	50.5	60.7	59.6	N.W. . .	2 to 5	S. & N. S. 10	Do.; gusty. Strong wind sprung up about 1 P. M.
	6	.935	61.6	53.7	48.8	54.6	53.9	W.S.W. .	4	S. & N. S. 10	Gusty; rain began at 7h. 30m. Quantity of rain fell
	9	27.978	58.2	47.4	46.4	47.9	48.0	Southward .	1	Rain . . .	Very hard. Late. [during day, 2.484 in.
	Midn't.	28.019	58.8	45.5	43.4	45.8	45.6	N.E. . . .	3	Rain . . .	Hard. Max. temp., 61°.3; min., 45'.1.
5	7 A. M.	.071	55.1	42.6	40.6	43.0	43.3	N.N.W. .	1	Rain . . .	Light. Min. wet, 40°.6.
	9	.124	59.8	45.0	41.6	44.4	44.4	S.E. . . .	2	N. S. 10 .	From N.W'd. Snow very low on mountains.
	Noon.	.132	56.0	49.3	45.3	48.0	47.6	N. westward	Air.	S. & N. S. 10	Clear to westward.
	3 P. M.	.171	62.5	50.3	46.2	49.8	49.2	N.E. . . .	1	S. & N. S. 10	Do.; clouds moving from northwest.
	6	.235	63.0	46.6	44.2	46.8	46.7	N.E. . . .	1	S. 10 . . .	Quantity of rain fell during day, 2.062 in.
	9	.289	57.8	43.8	42.6	44.2	44.3	N.E. . . .	2	S. 10 . . .	Clear in spots.
	Midn't.	.366	63.0	41.8	43.5	43.7	44.0	N.E. . . .	1	S. 10 . . .	Do. Max. temp., 50°.6; min., 42°.4.
6	7 A. M.	.438	58.3	42.2	40.6	42.6	43.0	N.W. . .	1	S. & C. S. 7	Min. wet, 40°.3. S. (lower) from N.W.; C. S. (upper) from S.W.
	9	.467	61.1	47.6	44.5	47.4	47.2	N.E. . . .	Air.	C. S. & C. 7	
	Noon.	.442	59.8	53.3	46.9	52.6	51.7	N.E. . . .	Air.	S. & K. S. 10	From northwest. Clear in spots.
	3 P. M.	.396	64.0	54.4	48.2	54.6	53.5	N.W. . .	1	C., K. S. & S. 10	From westward. Do.
	6	.372	59.0	49.7	45.2	49.8	49.7	N.E. . . .	1	S. & C. S. 10	Stars dimly visible.
	9	.370	61.7	47.3	43.9	47.6	47.5	Eastward .	1	S. 10 . . .	
	Midn't.	.372	62.1	45.9	43.3	46.0	46.2	Calm . .	0	N. S. 10 . .	Few drops of rain. Max. temp., 56°.2; min., 42°.7.
7	7 A. M.	.322	55.5	47.0	43.4	46.7	46.7	S.S.E. . .	1	Rain . . .	Clouds from northwestward. Min. wet, 41°.9.
	9	.342	60.4	49.5	44.0	49.0	48.8	S.S.E. . .	1	Rain . . .	Light.
	Noon.	.336	60.3	52.9	46.6	51.9	51.4	E. . . .	2	N. S. 10 . .	Few drops of rain.
	3 P. M.	.303	63.3	52.3	48.7	52.1	51.6	Calm . .	0	N. S. 10 . .	Do.
	6	.318	62.6	49.2	46.6	49.7	49.4	N.W. . .	2	N. S. 10 . .	Clear streaks to northwestward.
	9	.311	58.3	47.8	45.7	48.0	48.0	Calm . .	0	N. S. 10 . .	Quantity of rain during day, 0.092 in.
	Midn't.	.319	62.3	45.4	44.2	46.2	46.3	N.E. . . .	1	S. & C. S. 2	About horizon. Clouded up suddenly soon after midnight. Max. temp., 52'.8; min., 45'.0.
8	7 A. M.	.259	60.0	42.1	41.3	42 6	43.2	N.W. . .	Air.	C. S. & S. 7	Clear to westward. Min. wet, 40°.4.
	9	.273	62.0	45.3	43.6	45.3	45.3	S.E. . . .	Air.	C., C.S.& S.5	
	Noon.	.228	59.7	57.2	51.6	55.6	54.3	Calm . .	0	C. & C. S. 5	
	3 P. M.	.174	61.0	61.7	54.0	60.7	59.0	W.S W'd .	2	C. & K. S. 9	
	6	.188	61.2	55.3	51.3	55.7	55.7	Calm . .	0	C. K. & C. 8	Many stars visible, but dim.
	9	.191	60.7	51.3	47.8	51.8	51.5	Calm . .	0	C.K., C.S.& C.7	Do. do.
	Midn't.	.170	60.0	50.6	48.0	50.6	50.4	N.N.E. . .	1	S., C.& K.S. 10	Clear in spots. Max. temp., 60°.9; min., 42°.6.
9	7 A. M.	.140	57.8	49.5	47.2	49.8	49.5	Calm . .	0	S. & K. S. 10	From N.W. Clear to northward. Min. wet, 46°.7.
	9	.174	61.2	54.7	50.7	53.8	53.1	Westward .	Air.	S. & K. S. 10	
	Noon.	.140	60.4	60.2	54.3	59.3	58.1	N.W. . .	Air.	S. & K. S. 10	From northwest.
	3 P. M.	.153	62.4	58.0	53.0	57.8	56.8	N.E. . . .	Air.	S. & N. S. 10	Do.; rain commenced at 3h. 20m. P. M.
	6	.153	61.8	54.8	52.3	55.0	54.3	N.W. . .	3	Rain . . .	Light.
	9	.156	61.4	53.2	50.2	53.4	52.9	N.E. . . .	Air.	S. & N. S. 10	No rain in gauge! [min., 49°.3.
	Midn't.	28.121	61.3	51.1	48.7	51.6	51.3	N.E. . . .	1	S. 10 . . .	Few stars visible, but dim. Max. temp., 59°.6;

JUNE, 1832—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Stand-ard.	Register. Wet.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°				
*10	6 A. M.	28.095	57.8	50.2	48.3	50.6	50 2	N.W. . .	3	S. & N. S. 10	Clear in spots. Late. Min. wet, 48.°9.
	9	.162	61.5	52.0	49.6	52.0	51.5	W. . . .	3	Rain . . .	Hard; clear to westward; clouds from northwest.
	Noon.	.132	59 0	53.3	50.5	53.3	52.6	Southward .	Air.	Rain . . .	Moderate; clouds from northwest.
	3 P. M.	.124	62.8	52.8	50.6	53.3	52.6	S.W. . .	1	N. S. 10 . .	Clearing to westward; do.
	6	.143	60.7	51.9	50.3	52.1	51.7	N.E. . . .	1	Rain . . .	Light.
	9	.153	61.2	50.4	49.2	50.7	50.3	Eastward .	1	N.S. & C.S. 1(	Many stars visible, but blurred.
	Midn't.	.149	62.1	51.0	49 3	51.0	50.7	N.W. . .	2	N. S. 10 . .	Late. Max. temp., 54°.3; min., 49°.7;
†11	7 A. M.	.136	61.0	48.5	47 5	49.0	48.7	Calm . .	0	S. & K. S. 10	Clear in spots; S. from northwest. Min. wet. 40°.7.
	9	.186	63.2	49.8	48.2	50.0	49.5	Calm . .	0	Rain . . .	Clouds from northwest.
	Noon.	.204	63.3	50 9	49.6	51.2	50.8	S.W. . .	1	Rain . . .	Hard; clouds from southwest.
	3 P. M.	.231	64.4	49.5	47.8	50.0	49.4	S.W. . .	1	Rain . . .	Do. do. do. northwest.
	6	.281	61.6	47.7	45.3	47.8	47.6	N.E. . .	3	Rain . . .	Clear to westward.
	9	.268	60.0	46.4	45.1	46.7	46.7	N.W. . .	1	K. S. 1 . .	About horizon.
	Midn't.	.269	55.0	43.3	42.3	43.7	44.1	N.E. . . .	1	S. 1 . . .	Do. Taken at 2 A. M. Max. temp., 52°.7; min., 42°.7.
12	6 A. M.	.281	56.7	43.0	41.8	42.9	43.3	N.E. . . .	1	Fog 10 . .	Min. wet, 39°.4.
	9	.286	60.0	45.7	43.7	45.4	45.3	N.W. . .	1	Fog 10 . .	
	Noon.	.255	60.2	54.7	50.5	54.2	53.4	N.W. . .	1	Fog 10 . .	Fog breaking.
	3 P. M.	.215	64.7	54.4	50.4	56.0	55.7	S.W. . .	1	C. & C. S. 8	Very thin.
	6	.187	60.9	48.0	46.6	49.0	49.0	Westward .	Air.	S. & C. S. 1	Around horizon; atmosphere hazy.
	9	.154	58.3	44.0	43.3	44.8	45.2	N.E. . . .	1	S. & C. S. 5	Heavy about horizon; do.
	Midn't.	.100	60.4	41.8	41.3	42.7	43.3	N.E. . . .	Air.	S. & C. S. 4	Do. do. do. Late. Max. temp., 56°.7; min., 41°.2.
13	6 A. M.	.100	57.0	40.8	40.0	41.0	41.7	N.W. . .	Air.	C. S. & S. 10	From northwest. Min. wet, 39°.0.
	9	.112	58.4	45.8	44 2	45.3	45.4	N.W. . .	1	C. S. & C. 6	Do. Fog to westward.
	Noon.	.064	58.2	54.7	51.4	54.3	53.3	S.W. . .	1	C. & C. S. 3	To northward.
	3 P. M.	.091	59.8	53.4	50.5	55.1	54.1	W.S.W. .	3	S. & K. S. 1	Around horizon.
	6	.153	55.6	49.2	46.9	49.4	49.2	S. . . .	2	S. 10 . . .	
	9	.208	56.0	47.0	45.7	47.3	47.3	E. . . .	1	Rain . . .	
	Midn't.	.259	55.9	46.3	44.4	46.4	46.4	S.W. . .	1	S. & N. S. 10	Max. temp., 57°.3; min., 41°.3.
‡14	7 A. M.	.328	53.2	43.5	41.6	43.6	43.6	Eastward .	1	Rain . . .	Light; clouds from northwest. Min. wet, 39°.5.
	9	.353	57.2	47.8	43.6	47.4	46.8	E.N.E. . .	1	S. & N. S. 10	Breaking to westward; clouds from northwest.
	Noon.	.346	58 2	50.3	46.2	51.6	50.4	S.W. . .	1	K. 1 . . .	Around horizon.
	3 P. M.	.291	60.7	52.2	47.0	53.3	52.3	S.W. . .	1	K. & C. K. 1	Do.
	6	.300	57.5	47.2	44.4	48.6	48.3	S.S.W. . .	1	S. & C. S. 3	Do.
	9	.281	60.0	43.0	41.7	43.3	44.0	N.E. . .	1	0	S. Do. Hazy.
	Midn't.	.247	57.2	40.0	39.5	41.5	41.0	Calm . .	0	C. 1 . . .	And generally hazy; stars dim. Max. temp., 54°.2; min., 41°.0.
15	7 A. M.	.233	49.2	37.5	36.5	37.3	37.7	N.E. . .	1	S. & C. S. 10	Clear streak to westward; clouds from northwest.
	9	.259	54.8	43.7	40.8	43 5	43.6	S.W. . .	1	C. S. & S. 7	Min. wet, 34°.3.
	Noon.	.240	54.3	49.2	46.2	50.6	49.3	S.W. . .	1	C. S. & C. 5	
	3 P. M.	.260	60.3	51.8	45.2	52.2	51.3	W.S.W. . .	1	C. & C. S. 2	C. very thin; about horizon.
	6	.259	57.1	44.8	43.3	46 8	46.7	Calm . .	0	C. & C. S. 2	To northward; hazy.
	9	.251	54.7	42.4	40.3	42.3	42.8	Calm . .	0	C. & C. S. 5	Do. do.
	Midn't.	28.235	56.0	40.5	38.7	40.3	41.3	Calm . .	0	S. & C. S. 10	Hazy. Max. temp., 53°.1; min., 36°.2.

* Quantity of rain, 0.463 *in.*

† 11*h.* 42*m.* 15*s.* A. M., two smart earthquake shocks, without noise. Quantity of rain, 2.153 in.

‡ Quantity of rain, 0.365 *in.*

JUNE, 1832—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Stand-ard.	Register. Wet.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches	°	°	°	°	°				
16	7 A. M.	28.203	50.4	38.0	36.5	38.0	38.7	N.E. . .	Air.	S. & C. S. 10	Clear streak to westward. Min. wet, 36°.4.
	9	.240	53.7	42.4	39.2	41.3	41.8	Westward .	1	S. & C. S. 10	Do.
	Noon.	.234	56.1	51.4	45.6	52.7	51.6	S.W. . .	1	C. & C. S. 10	Do. K. & K. S. about mountains.
	3 P. M.	.233	58.4	49.0	44.2	49.6	48.7	S.S.W. . .	1	S. & C. S. 10	Clear in spots. Do.
	6	.275	60.1	43 9	41.2	44.6	44.6	S.S.W. . .	3	C. S. & C. 9	Do.
	9	.289	58 6	39.5	38.7	39.8	41.1	Calm . .	0	C. S. & C. 6?	Hazy; stars indistinct.
	Midn't.	.289	58 2	39.4	37.5	38.8	40.2	N.E. . .	Air.	S. 10 . .	Stars not visible. Max. temp., 52°.9; min., 38°.6.
17	7 A. M.	.259	50.2	38.8	37.2	38.8	39.7	Calm . .	0	S. & K. S. 10	From westward. Min. wet, 36°.2.
	9	.266	50.9	41.7	38 3	41.0	41.4	Calm . .	0	S. & K. S. 10	
	Noon.	.254	51.7	45.4	40.5	44.6	44.6	S. westward	Air.	S.,K.S. &C. 6	
	3 P. M.	.222	54.5	46.6	42.4	47.3	47.4	Westward .	Air.	S.,C.S. & C. 6	C. very thin.
	6	.210	52.9	42.0	39.7	42.4	42 6	Eastward .	1	S. 10 . .	Clear to westward.
	9	.215	55.4	39.1	36 6	39 6	40.3	N. eastward	Air.	S. 10 . .	
	Midn't	.210	56.7	37.2	36.6	38.3	39.0	Southward .	Air.	S. 10 . .	Max. temp., 47°.8; min., 38°.7.
18	7 A. M.	.174	52.0	39.5	38.2	39.1	40.0	Calm . .	0	S.,K.S.&C S. 8	Clear to westward. Min. wet, 35°.1.
	9	.201	54.4	43.4	40.2	42.2	42.6	N.W. . .	1	S. & K. S. 9	Do.
	Noon.	.179	56.6	49.5	45.5	48.9	48.3	S.W. . .	Air.	S. & K. S. 10	Clear in spots.
	3 P. M.	.156	61.7	53.4	48.7	51.8	51.2	Southward .	Air.	S.,K.S &C S.10	Do.
	6	.152	58.3	47.6	45.2	47.7	47.6	Southward .	Air.	S.,K.S. & C.10	
	9	.142	58 1	47.1	44.3	46.7	46.6	Calm . .	0	S. & K. S. 10	
	Midn't.	.136	56.0	46.7	43.7	46.4	46.3	E.N.E. . .	3	S. 10 . .	Max. temp., 52°.6; min., 36°.3.
19	7 A. M.	.223	54.0	44.5	42.3	44.4	44.4	N.W. . .	Air.	S. & N. S. 10	From N.W.; snowing over Andes. Min. wet, 41°.5.
	9	.298	56.2	46.0	42.3	45.4	45.3	E. . . .	1	Rain . . .	Commenced at 7h. 30m.; light.
	Noon.	.300	55.8	51.0	45.4	50.3	49.6	S.W. . .	Air.	S. & N. S. 10	From northwest.
	3 P. M.	.316	61.3	52.0	47.3	51.3	50.7	W.N.W. .	2	S. & N. S. 10	Do. Clear streak to westward.
	6	.297	57.0	48.0	45.6	48.0	47.7	Eastward .	1	S. & K. S. 10	Clear spots to westward.
	9	.304	54.7	46.1	44.6	46.1	45.2	N.E. . .	Air.	S. 10 . .	
	Midn't.	.317	57.7	44.5	43.0	44.6	44.6	N.E. . .	Air.	S. 10 . .	Max. temp., 51°.7; min., 44°.1.
20	7 A. M.	.278	53.0	46.9	43.8	46.1	46.0	N.W. . .	3 & 5	S. & N. S. 10	From northwest; gusty. Min. wet, 42°.8.
	9	.266	55.2	48.6	45.1	47.8	47.4	N.W. . .	3	S. & N. S. 10	Do. do.
	Noon.	.232	55.4	52.5	47.6	51.4	50.6	W. . . .	1	S. & N. S. 10	Do.
	3 P. M.	.236	58 2	51.9	47.6	51.4	50.6	W. . . .	3	S.,N.S.&KS.10	Do. Snowing over Andes.
	6	.233	55.6	49.9	46.3	49.7	49.4	N.E. . . .	1	Rain . . .	Few drops.
	9	.246	57.0	49.4	45.7	48.8	48.6	N.N.W. .	1	S. 10 . .	
	Midn't.	248	56.8	47.2	44.7	47.3	47.2	N.E. . . .	Air.	S. 10 . .	Max. temp., 52°.3; min., 44°.3.
21	7 A. M.	227	54.0	47.0	43.8	46.7	46.5	Eastward .	Air.	S. & K. S. 10	From northwest. Min. wet, 41°.8.
	9	.245	56.0	47.5	44.3	47 3	47.1	Eastward .	Air.	S. & K. S. 10	Do.
	Noon.	.230	55.1	52.2	47.7	51.3	50.5	Southward .	Air.	S. & K. S. 10	Do.
	3 P. M.	.260	60.6	52.2	43.7	51.8	51.2	S.E. . . .	1	S. & K. S. 10	
	6	.273	59.2	50.3	48.6	50.4	49.8	N.W. . .	1	S. & K S. 10	
	9	.285	56.6	47.2	44.2	47.2	47.2	N.E. . . .	Air.	S. & C. S. 1	About horizon.
	Midn't.	.306	60.2	44.0	42.3	44.3	44.4	Calm . .	0	0	Max. temp., 52°.4; min., 44°.4.
22	7 A. M.	.307	53 0	44.7	42.9	44 6	44.5	N. eastward	Air.	S. 10 . . .	Min. wet, 32°.6.
	9	.334	54.2	49.9	46.7	49 8	49.4	N.E. . . .	1	S. 1 . . .	About horizon.
	Noon.	.284	57.2	57.8	52.2	57.1	55.4	N.W. . .	Air.	0	Smoky. Few light C.
	3 P. M.	.229	61.2	61.7	53.6	60.7	59.0	S.W. . .	Air.	C. 2 . . .	Do.
	6	.215	60.1	52.8	49.3	54.1	53.2	Southward .	Air.	0	
	9	.197	58.1	45.2	42.8	45.8	46.3	N.E. . . .	Air.	0	
	Midn't.	28.140	57.0	40.8	32 6	41.8	42.3	Northward .	Air.	0	Max. temp., 61°.0; min. 42°.3.

JUNE, 1852—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Standard.	Register. Wet.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°				
23	6 A. M.	28.054	50.4	36.7	35.3	37.1	38.5	Calm . .	0	0	C. to E'd. Slight frost on house-tops. Min. wet, 34°.3.
	9	.060	53.6	47.3	43.8	45.6	45.5	N.W. . .	Air.	0	Rays to W.S.W. before sunrise; rose-colored.
	Noon.	.059	56.3	62.3	52.2	58.6	57.0	S.W. . .	Air.	0	Smoky to west and southwest.
	3 P. M.	.050	60.0	67.3	53.5	64.3	62.6	S.W. . .	Air.	0	
	6	.057	58.6	54.2	47.3	55.4	54.3	N.E. . .	1	0	
	9	.108	56.3	47.6	43.7	48.7	48.6	S.S.W. . .	1	0	
	Midn't.	.129	59.0	43.9	40.7	44.7	45.3	N.E . . .	1	0	Max. temp., 64°.4; min., 38°.3.
24	6 A. M.	.129	52.3	39.7	37.8	40.4	41.2	Calm . .	0	0	Light C. to eastward. Min. wet, 37°.7.
	9	.117	54.8	50.3	44.8	49 7	49.4	N.W. . .	Air.	0	Smoky. C. and C. S. to southwest.
	Noon.	.147	57.0	61.1	50.6	59 3	58.3	Calm . .	0	0	C. and C. S. to southwest.
	3 P. M.	.153	61.8	62.2	53.4	63.3	62.2	S.W. . .	1	0	Do. do.
	6	.154	59.7	53.5	49.2	55.3	54.4	Calm . .	0	0	Do. do. and westward.
	9	.144	55 3	45.4	43.5	46.7	46.5	Calm . .	0	C. & C. S. 5	Thin.
	Midn't.	.205	57.8	44.8	43.2	45.4	45.4	N.E. . .	1	C. & C. S. 3	To southwestward. Max. temp., 65°.9; min., 40°.7.
25	7 A. M.	.106	52 6	45.0	41.5	44.8	45.0	N.W. . .	Air.	C. & C. S. 8	Thin. Min. wet, 39°.5.
	9	.116	55.9	51.8	45.7	49.9	49 3	S.S.W'd .	1	C.S. & C.K. 10	Clear to west and northwest.
	Noon.	.094	56.8	57.0	51.2	55.6	54.4	Westward .	Air.	C S.,CK.&S.10	
	3 P. M.	.085	61.8	58.0	51.4	57.4	56.3	Eastward .	Air.	S. & K. S. 10	From northwestward.
	6	.096	59.5	54.0	48.2	54.2	53.6	N.N.W. .	Air.	S. 10 . .	A few stars visible.
	9	.101	58.0	49.9	44.0	50.0	50.0	N.E. . .	1	S.,C.S.& C.7	
	Midn't.	.098	56.0	45.5	43.6	46.4	46 6	Calm . .	0	C. S. & C. 5	Max. temp., 59°.4; min., 41°.6.
26	7 A. M.	.116	51.7	41.0	39.8	40.7	41.5	W. . . .	1	Fog 10 . .	Min. wet, 38°.3.
	9	.134	53.7	40.8	39.0	40.5	40.7	E. . . .	1	Fog 10 . .	
	Noon.	.145	57.2	47.8	44.0	46.8	46.6	W.N.W. .	1	Fog 10 . .	
	3 P. M.	.167	63.7	47.6	44.8	47.3	47.1	S.W. . .	1	Fog 10 . .	
	6	.166	58.2	46.0	44.3	46.2	46.2	S. eastward	Air.	Fog 10 . .	
	9	.162	56.3	45.6	43.8	45.6	45.6	N. eastward	Air.	Fog 10 . .	
	Midn't.	.169	56.0	43.0	41.7	43.2	43 3	N.E. . .	Air.	Fog 10 . .	Taken an hour late. Max. temp., 49°.2; min., 40°.3.
27	7 A. M.	.148	57.1	40.0	38.8	40.0	40.8	S.W. . .	1	Fog 10 . .	Min. wet, 38°.7. At 1h. 48m. A. M. (mean time, Santiago) two earthquake shocks, quite long and heavy, with loud noise, apparently from northwest. J. M. G.
	9	.160	57.8	43.8	41.3	42.8	43.3	N.E. . .	1	Fog 10 . .	
	Noon.	.190	56.8	52.8	50.5	53.3	52.1	S.W. . .	1	C. & C. S. 9	
	3 P. M.	.090	60.4	59.8	52.4	59.0	57.7	S.W. . .	1	C. S. & C. 2	
	6	.118	58.2	51.8	49.4	52 4	52.0	N.E. . .	1	C. 10? . .	Sky covered with thin C. or fog.
	9	.108	61.0	46.4	45.2	47.2	47.3	N.W. . .	Air.	K.S.& C.S. 10	Clear in spots. Halo around moon.
	Midn't.	.109	59.8	49.9	41.3	43 4	44.3	N.E. . .	Air.	C. & C. S. 2	Halo around moon. Max. temp., 59°.2; min., 40°.6.
28	7 A. M.	.143	55.3	39.9	38.6	40.3	41.3	N.E. . .	Air.	C. & C. S. 10	Rays to W.S.W. Min. wet, 36°.3.
	9	.172	57.0	50.6	45.4	49.8	49.7	Southward .	Airs.	C. & C. S. 10	
	Noon.	.163	56.9	56.7	50.7	56.0	54.7	S. westward	Air.	S., C.S. & C. 10	
	3 P. M.	.142	60.8	60.0	51.2	59.0	57.8	Calm . .	0	C. & C. S. 10	Very thin.
	6	.192	59.4	51.2	47.8	52.9	52.4	S.S.E. . .	Air.	C. & C. S. 10	Halo around the moon.
	9	.204	59.5	49.2	46.7	49.4	49.4	N.W. . .	Air.	C.S.,C.K.&S.9	From northwest.
	Midn't.	.208	56.7	46.5	44.6	46.6	47.0	N.E. . .	Air.	C. S. & C. 4	Max. temp., 59°.2; min., 41°.0.
29	7 A. M.	.228	56.1	40.2	38.0	40.8	41.7	S.W. . .	Air.	C. S. & C. 7	Min. wet, 37°.8.
	9	.235	57.7	49.8	44 3	48.5	48.3	S.W. . .	Air.	C. & C. S. 4	
	Noon.	.212	59.5	60.2	51.6	58.4	57.3	N.W. . .	1	C. S. & C. 8	
	3 P. M.	.160	61.4	65.3	51 9	63.3	62.3	S.W. . .	Air.	C. S. & C. 7	
	6	.163	60.0	56.2	49.6	56.7	56.2	N.E. . .	Air.	C. & C. S. 9	Very thin. Halo around the moon.
	9	.163	57.8	50.5	46.2	51.4	51.4	Calm . .	0	C. & C. S. 9	Halo around the moon.
	Midn't.	28.194	60.0	47.2	44.1	47.9	48.3	N.E. . .	1	S. & C. S. 10	Do. do. Max. temp., 63°.6; min., 41°.6.

JUNE, 1852—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Register.			Direction.	Force.		
					Wet.	Max.	Min.				
		Inches.	°	°	°	°	°				
30	7 A. M.	28 073	57.1	43.5	40 4	44.0	44.7	N.E. . . .	Air.	C. S. & C. 9	Min. wet, 40°.2.
	9	.126	58.3	50.3	47.2	50 9	50.7	S.E. . . .	Air.	C. S. & C. 8	From the westward.
	Noon.	.113	60.8	67.6	54.5	63.3	62.3	S.W. . .	Air.	0	C. S. about horizon to west and southwest.
	3 P. M.	.108	62 0	67.8	56.0	66.1	64.9	S.W. . .	Air.	S. & C. S. 10	
	6	.115	60.9	59.5	54 2	59.8	59.2	N.E. . . .	Air.	C. K. & S. 9	From west.
	9	.117	60.3	53.8	50.0	54.4	54 3	N.W. . .	1	S. & K. S. 10	Do. Halo around the moon. [min., 44°.3.
	Midn't.	28.130	59.0	50.0	47.2	50.8	51.2	N.E. . . .	1	S. & C. S. 10	Clear in spots. Do. Max. temp., 66°.2;

JULY, 1852.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Register.			Direction.	Force.		
					Wet.	Max.	Min.				
		Inches.	°	°	°	°	°				
1	7 A. M.	28.159	57.8	46.6	45.5	48 8	49.0	E. . . .	Air.	C. K. & C. S. 7	Rays to W.S.W. Min. wet, 44°.3.
	9	.164	59 1	54.1	49.3	53.0	52.7	W. . . .	1	S. & C. S 10.	From westward.
	Noon.	.152	59.7	63.3	54.6	62.7	61.7	S.W. . .	1	S. & C. S. 9	From N.W.
	3 P. M.	.148	62.2	65.0	57.2	65.6	64.7	S.W. . .	1	S. & C. S. 10	Do.
	6	.162	61.0	58.0	53.9	59.2	58.5	N.E. . . .	1	S.,C. & K. S. 9	Do.
	9	.156	59.6	52.6	50.4	53.7	53.6	N.W. . .	1	S. & K. S. 10	Halo around the moon.
	Midn't.	.189	60.8	50.4	48.7	51.3	51.3	N.W. . .	1	S. & K. S. 10	From northwest. Max. temp., 66°.6; min., 49°.6.
2	7 A. M.	.206	58.1	47.3	46.2	48.8	48.4	S.S.E. . .	1	S. & K. S. 10	Heavy fog bank about the mountains. Min. wet,
	9	.220	58.1	48.2	46.6	48.3	48.3	S.E. . . .	1	Fog 10 . .	45°.7.
	Noon.	.215	58.0	51.5	49.7	51.6	51.4	W. . . .	1	Fog 10 . .	
	3 P. M.	.200	59.0	51.8	50.0	51.8	51.7	S.E. . .	Air.	Fog 10 . .	
	6	.200	59.8	51.0	49.6	51.3	51.3	N.W. . .	1	Fog 10 . .	
	9	.186	60.9	49 5	48.4	49.8	50.0	N.E. . . .	2	Fog 10 . .	
	Midn't.	.191	61.2	49.0	48.0	49.3	49.4	N.W. . .	3	Fog 10 . .	Max. temp., 52°.3; min., 47°.5.
3	7 A. M.	.143	55.8	48.4	47.3	48.6	48.6	N.E. . . .	1	Fog 10 . .	Min. wet, 46°.6.
	9	.161	57.2	50.5	48.8	50.3	50.2	N.E. . .	1	Fog 10 . .	
	Noon.	.142	60.0	52.0	49.7	51.2	51.5	N. westward	1	Fog 10 . .	
	3 P. M.	.111	59.8	51.0	49.2	51.0	51.0	Eastward .	1	Fog 10 . .	
	6	.082	57.3	49.2	47.8	49.8	49 5	E.N.E. . .	2	Fog 10 . .	
	9	.104	59.7	48.2	47.3	48.7	49.1	Calm . .	0	Fog 10 . .	
	Midn't.	.044	56.6	47.6	46.7	48.0	48.2	W.S.W. .	1	Fog 10 . .	Taken at 1 A. M. Max. temp., 52°.2; min.., 47°.7.
4	6 A. M.	.086	55.0	47.3	46.2	47.4	47.6	N.E. . . .	1	Fog 10 . .	Rain during the day, 0.380 in.
	9	.131	54.6	49.5	45.3	49.2	49.1	N.E. . . .	1	K. S. 10 . .	
	Noon.	.143	55.0	55.0	47.9	50.2	50.5	Southward .	1	K. S. 10 . .	
	3 P. M.	.184	54.4	48.5	43.8	48.6	48.0	S. eastward	2	K. S. 10 . .	
	6	.236	53.5	43.6	41.5	44.6	43.5	S. eastward	3	Rain . . .	Hard.
	9	.267	54.3	44.0	41.6	43.7	44.3	N.E. . . .	1	Rain . . .	Few drops.
	Midn't.	28.274	55.0	40.7	39.9	41.4	42.0	N.N.W. .	2	C. S. 1 . .	Max. temp., 54°.6; min., 42°.0.

JULY, 1853—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Standard.	Register. Wet.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°				
*5	6 A. M.										Min. wet, 32°.6. Frost on the house-tops.
	9	28.318	53.7	42.9	41.2	42.9	43.8	N.E. . .	Air.	0	Clouds about Andes
	Noon.	.267	54.6	49.8	45.8	50.0	49.3	S.W. . .	1	K. & K. S. 9	Clear to westward.
	3 P. M.	.253	56.8	49.8	45.3	49.8	49.5	S.W. . .	1	K. & K. S. 2	Mostly about horizon.
	6	.287	57.4	43.6	40.3	44.7	45.1	S.S.E. . .	1	0	
	9	.276	54.3	37.8	36.0	38.0	39.6	Southward .	Air.	0	
	Midn't.	.314	56.8	33.7	32.6	34.8	36.0	S'd and E'd	Air.	0	Cloudy about Andes. Max. temp , 50°.6 ; min., 33°.0.
6	6 A. M.	.269	47.8	32.5	32.0	32.7	34.8	S.S.E. . .	Air.	0	C. to eastward. Heavy frost. Min. wet, 29°.7.
	9	.307	51 0	40.7	37.8	40.4	41.7	Southward .	Air.	0	Smoky to westward.
	Noon.	.281	57.1	49.4	45.1	49.7	49.2	S. westward	Air.	0	Do. to southwestward.
	3 P. M.	.242	60.1	52.7	46.8	53.0	52.4	S.W. . .	1	0	
	6	.244	58 0	47.4	43.7	47.7	47.8	N.E. . .	Air.	0	C. S. to westward.
	9	.240	55.8	40 2	39.3	40.6	42.2	N.E. . .	1	0	Zodiacal light seen about 7 P. M. J. M. G.
	Midn't.	.256	58.1	36.8	35.0	37.1	37.7	Southward .	Air.	0	Max. temp., 53°.4 ; min , 33°.8.
7	7 A. M.	.238	49.7	33.2	32.3	33.0	35.2	Eastward .	Air.	0	Heavy frost. C.&C.K. about horizon. Min. wet, 31°.4.
	9	.264	52.8	41.8	39.8	40.6	41.7	N.W. . .	Air.	0	Smoky to westward ; C. and C. S. about horizon.
	Noon.	.246	58.1	52.5	47.3	50.4	50.3	N.W. . .	1	0	Do. do. to southwest.
	3 P. M.	.220	59.7	56.0	46.1	55.2	54.6	N.E. . .	1	0	Do. do. over Andes.
	6	.234	58.8	47.8	43.0	48.7	48.6	Southward .	Air.	0	C. S. to westward.
	9	.246	59.0	39.8	38.3	40.4	41.7	N.E. . .	Air.	0	
	Midn't.	.246	57.8	35.2	33.6	35.6	37.2	Southward .	Air.	0	Max. temp., 55°.3 ; min., 34°.7.
8	7 A. M.	.200	52.4	32.5	31.7	32.7	34.6	N.E. . .	Air.	0	Smoky to westward. Heavy frost. Min. wet, 31°.0.
	9	.229	55.2	39.2	37.5	38.2	39.3	S.W. . .	Air.	0	Do.
	Noon.	.201	55.1	49.7	45.4	48.7	48.4	N.W. . .	Air.	0	
	3 P. M.	.180	60.8	53.7	46.6	53.6	53.0	S.W. . .	1	0	
	6	.161	56.6	44.7	39.8	45.6	45.7	Eastward .	1	0	
	9	.194	54.5	38.0	35.7	38.1	39.7	N.E. . .	Air.	0	
	Midn't.	.183	55.6	34.1	33.2	34 2	36.2	N.W. . .	1	C. & C. S. 1	Late. Max. temp., 53°.7 ; min., 33°.7.
9	7 A. M.	.182	51.8	31.2	29.7	31.0	33.0	S.E. . .	1	0	Rays to W.S.W. Min. wet, 29°.0.
	9	.180	54.4	40.4	37.2	39.2	40.4	N.W. . .	2	0	Smoky to west and southwest.
	Noon.	.144	54.3	54.2	46.5	52.6	51.8	S. . . .	1	0	
	3 P. M.	.122	59.6	60.4	48.6	57.7	56.7	N.W. . .	Air.	0	
	6	.122	58.1	51.0	45.3	51.4	51.3	Calm . .	0	0	Zodiacal light seen.
	9	.121	55.7	43.5	40.7	44.0	45.1	N.E. . .	1	0	
	Midn't.	.121	57.6	41.3	38.0	41.3	42.6	N.E. . .	1	0	Max. temp., 58°.2 ; min., 39°.7.
10	7 A. M.	.067	52.7	38.7	36.9	38.7	40.2	N.N.E. . .	Air.	0	Rays to W.S.W. Min. wet, 35°.8.
	9	.112	54 4	50.0	43.1	47.8	47.8	N.E. . .	Air.	0	Smoky to westward. C. to N.W.
	Noon.	.109	56 2	63.1	49.2	59.4	58.3	S.W. . .	Air.	C. & C. S. 2	
	3 P. M.	.116	59.0	65.4	52.2	64.8	63.4	W.S.W. .	2	C. & C. S. 3	
	6	.192	60.7	52.0	47.0	53.0	53.0	Calm . .	0	C. 1 . . .	From W. to W.N.W. Taken at 7 P. M. Zodiacal light very distinct.
	9										
	Midn't.	28.226	58.0	42.0	41.0	43.3	43.9	N.N.W. .	1	Fog . . .	Max. temp., 67°.0 ; min., 39°.9.

* An earthquake commenced 0h. 41m. P. M., and continued slight till 0h. 41m. 10s. P. M. A hard shock then began, which lasted till 0h. 41m. 20s., when it became lighter and died away at 0h. 41m. 32s. P. M. By observation of Mr. Gilliss, (on Santa Lucia,) the shocks lasted from 0h. 41m. 03s. to 0h. 41m. 38s. P. M. [Its motion was apparently to the southward, in the direction of the greater axis of Santa Lucia, though, during the greatest violence, the meridian circle oscillated tremblingly in the transverse direction through more than a quarter of an inch. The mercury in the bottle used for nadir determinations was shaken up so uniformly that it would not serve as a guide to the direction from which the disturbing force came. The agitation was rather that of successive rapid impulses than of a long continuous wave. J. M. G.]

JULY, 1853—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Aut'd.	Standard.	Register. Wet.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°		°	°	°				
11	6 A. M.										Min. wet, 38°.0.
	9	28 236	55.7	42.0	40.5	42.0	42.3	Northward .	1	Fog . . .	
	Noon.	.230	55.5	46.0	42.5	45.7	45.5	N. eastward	1	Foggy . .	
	3 P. M.	.216	59.4	45.3	42 6	45.5	45.4	E.S.E. . .	1	Foggy . .	
	6	.195	55.5	43.5	42.5	44.0	44.5	Westward .	1	Foggy . .	
	9	.185	55.8	43.3	41.7	43.0	43.7	N.E. . . .	Air.	Foggy . .	
	Midn't.	.176	56.0	42.0	41.0	42.0	42.5	N.N.W. .	2	Foggy . .	Max. temp., 46°.5; min., 41°.0.
*12	7 A. M.	.113	50.0	36.8	35.7	36 7	37.8	N.W. . .	Air.	Foggy . .	Min. wet, 32°.7.
	9	.114	51.4	38.8	36.2	38.4	39.2	S.E. . . .	1	Foggy . .	Fog breaking away very fast.
	Noon.	.074	53.3	54.1	48.7	52.0	51.6	N.W. . .	Air.	C,K.S.&C.K.10	From northwest; clear in spots.
	3 P. M.	.088	57.0	56 6	50.5	54.4	54.3	Eastward .	Air.	S. 10. . .	
	6	.109	57.0	51.6	48.2	51.5	51.3	Calm . .	0	S. 10. . .	
	9	.147	56.6	46.4	44.1	46.7	47.4	N.W. . .	3	S. 10. . .	A few stars visible, but dim.
	Midn't.	.147	55.0	43.9	41.2	42.7	43.7	Calm . .	0	S. & C. S. 3	Around horizon. Max. temp., 55°.3; min., 36°.3.
13	7 A. M.	.137	48.7	36.2	35.4	36.3	37.7	Calm . .	0	Foggy . .	Frost on the housetops. Min. wet, 33°0.
	9	.164	52.4	40.1	38.6	40.8	41.8	N.W. . .	3	0 · . . .	Fog bank to west and northwest.
	Noon.	.142	54.0	51.2	46.6	51.0	50.5	N.W. . .	3	0	Smoky to west and southwest.
	3 P. M.	.129	59.3	56.2	48.7	55.0	54.2	S. westward	Air.	0	C. & C. S. to southwest.
	6	.145	57.1	45.1	42.8	47.4	47.6	N.E. . . .	Air.	C. & C. S. 3	
	9	.161	56.2	39.3	38.2	39.6	40.8	N.E. . . .	1	Foggy . .	Weather variable; fog blowing about.
	Midn't.	.202	55.6	37.7	36.8	38.0	38.8	Eastward .	2	Foggy . .	Do. do. do. Max. temp., 55°.2; min., 35°.2.
14	7 A. M.	.171	54.1	38.7	37.5	38.4	39.6	N.E. . . .	1	Foggy . .	Min. wet, 35°.1.
	9	.212	53.0	39.6	37.8	39.1	40.0	S.S. eastward	1	Foggy . .	Fog lifting.
	Noon.	.208	57.0	46.4	41.7	45.0	45.1	N.W. . .	1	S. & K. S. 10	
	3 P. M.	.174	59.8	46.4	42.4	45.8	45.8	S.S.E. . .	1	S. & K. S. 10	
	6	.174	56.6	43.7	41.6	43.6	44.3	N.E. . . .	1	S. & K. S. 10	
	9	.170	56.3	42.3	40.6	42.0	43.0	N.E. . . .	1	S. 10. . .	
	Midn't.	.170	56.0	42.1	40.1	41.6	42.6	N.E. . . .	1	S. 10. . .	Max. temp., 46°.7; min., 38°.6.
15	7 A. M.	.140	52 5	44.9	41.1	43.8	44.5	N.E. . . .	2	S. & N. S. 10	From N.W.; snowing over Andes? Min. wet, 39°.5.
	9	.159	54.3	46.1	42.3	45.0	45.3	N.W. . .	2	S. & N. S. 10	Do. do. do.
	Noon.	.122	57.0	50.7	45.6	49.9	49.7	N.W. . .	1	S. & N. S. 10	Do. do. do.
	3 P. M.	.091	60.6	52.5	46.3	51.4	51.2	N.W. . .	1	S. 10. . .	
	6	.080	56.9	47.1	43.8	47.2	47.7	Calm . .	0	S. 10. . .	
	9	.081	55.1	44.4	41.7	44.2	45.2	Eastward .	Air.	S. & C. S. 10	
	Midn't.	.077	56.0	42 0	40.0	42.0	43.0	Eastward .	1	C. S. 10 . .	Taken at 12h. 20m. Max. temp., 52°.5; min., 42°.0.
†16	7 A. M.	.083	52.0	42.7	39.7	41.9	43.0	Eastward .	Air.	S. & C. S. 10	Min. wet, 38°.7.
	9	.092	53.4	47.8	43.0	46.3	46.7	Westward .	Air.	S. 10. . .	
	Noon.	.080	54.3	57.5	50.3	55.3	54.7	S.W. . .	Air.	S.,C.&K.S. 9	Clear in spots.
	3 P. M.	.089	59.4	57.2	50.0	55.7	55.3	Eastward .	1	S. & K. S. 10	From northwest; clear in spots.
	6	.086	58.7	52.7	47.5	52.6	52.5	S.W. . .	1	S. & K. S. 1	Around horizon.
	9	.121	57.5	49.4	45.4	49.3	49.6	Calm . .	0	S. & C. S. 10	A few stars visible, but dim.
	Midn't.	28.190	54.7	47.4	45.3	47.3	47.5	N.E. . . .	1	S. 10. . .	Max. temp., 56°.8; min., 41°.7.

* A slight earthquake, with much noise, about 0h. 40m. A. M.; it evidently came from the northward or northeastward.

J. M. G.

† Zodiacal light in the evening; indistinct.

JULY, 1852—Continued.

DATE.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Standard.	Register. Wet.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches	°	°	°	°	°				
*17	7 A. M.										Min. wet, 44°.1.
	9	28.240	54.8	48.0	45 8	47.3	47.6	Southward .	Air.	Rain . . .	
	Noon.	.231	56.3	53.0	48.6	52 7	52.5	S. westward	Air.	S. & N. S. 10	
	3 P. M.	.244	60.2	52.2	48.5	52.0	51.7	Southward .	Air.	S. & N. S. 10	From southward; clouds breaking.
	6	.302	58.2	49.5	46.7	49.7	49.7	N.E. . .	Air.	Rain . . .	Very hard.
	9	.324	58.0	46.4	45.2	46.7	47.2	Calm . .	0	S. 4 . . .	
	Midn't.	.357	57.1	46.3	45.2	46.3	47.0	N.W. . .	Air.	S. 10 . . .	Max. temp., 52°.8; min., 45°.8.
18	7 A. M.	.356	53.2	42.5	41.5	42.3	43.5	Calm . .	0	0	S. and C. S. about horizon; snow very low on moun-
	9	.389	56.0	48.0	46.2	47.5	47.5	Calm . .	0	0	S., C. S. and K. about horizon, heavy. [tains. Min.
	Noon.	.347	55.8	53.8	50.3	53.9	53.2	Calm . .	0	C. 5 . . .	Very thin; from northwest. [wet, 39°.7.
	3 P. M.	.336	61.0	56.7	50.8	56.7	55.8	Calm . .	0	0	C. and K. about horizon.
	6	.307	58.8	51.3	47.7	52.1	52.2	Calm . .	0	0	C. and C. S. about horizon.
	9	.285	57.3	44.6	43.5	45.3	46.4	Calm . .	0	0	
	Midn't.	.246	56.2	41.4	40.2	42.0	43.4	Eastward .	Air.	0	Max. temp., 57°.0; min., 41°.7.
19	7 A. M.	.109	49.2	41.5	39.3	40.5	42.0	Eastward .	Air.	S.,C.S.&CK.10	Clear streak to northward. Min. wet, 36°.2.
	9	.161	52.9	44.6	42.4	43.8	44.5	N.W. . .	Air.	S. 10 . .	
	Noon.	.182	55.3	45.0	43.6	45.7	46.0	S.W. . .	1	Foggy . .	
	3 P. M.	.115	60.1	47.3	45.4	47.4	47.5	S.W. . .	Air.	S. 10 . .	Fog around base of mountains.
	6	.135	55.2	45.7	44.3	45.7	46.3	E.N.E. . .	1	S. 10 . .	
	9	.124	56.1	45.3	44.2	45 1	45.8	E.S.E. . .	1	S.? 10 . .	
	Midn't.	.094	56.7	45.1	43.7	44.8	45.6	Southward .	Air.	S.? 10 . .	Taken at 1h. 40m. Max. temp., 47°.8; min., 39°.2.
											[wet, 42°.7.
†20	7 A. M.	.058	53.8	44.2	42.7	43.9	44.6	S. eastward	Air.	S. & C. S. 10	Heavy bank of clouds about base of mountains. Min.
	9	.076	56.0	46.9	44.3	46.0	46.5	E.N.E. . .	Air.	S.,C.S.&C.K.10	Do. do.; clear streak to N'd.
	Noon.	.008	54.8	52.8	47.6	52.3	52.0	N.W. . .	1	S. & C. K. 10	Clear streak to northward.
	3 P. M.	.030	59.7	51.0	46.5	51.0	51.0	S.W. . .	Air.	S. & K. S. 10	
	6	.010	56.7	48.2	45.3	48.2	48.7	N.E. . .	1	S. 10 . .	
	9	.019	57.7	49.4	44.5	49.1	49.5	N.E. . .	1	*Rain . . .	*Commenced about 8h. 45m. Soon after 9 P. M. wind began blowing hard and squally.
	Midn't.	.048	56.4	45.0	43.0	45.2	45 6	Northward .	4	Rain . . .	Max. temp., 55°.6; min., 44°.2.
‡21	7 A M.	.136	52.3	43.0	40.7	42.6	43.4	N.W. . .	1	Rain . . .	Clouds from northwest. Min. wet, 39°.7.
	9	.204	55.0	41.8	39.3	41.1	42.3	N.W. . .	1	Rain . . .	Do. do.
	Noon.	.267	53.7	43.0	39.7	41.9	43.0	N.W. . .	1	Rain . . .	Light clouds from northwest; squally.
	3 P. M.	.352	58.7	41.2	38.5	40.2	41.6	N.W. . .	1	Rain . . .	Do. do.; breaking away to S. W'd.
	6	.402	55.5	38.3	37.2	38.6	40.3	N.E. . . .	1	K.,K.S.&C.1	Heavy around horizon.
	9	.439	54.6	34.5	34.5	35.1	37.1	N.E. . . .	1	0	C. S. heavy around horizon.
	Midn't.	.441	52.0	32.9	32.7	33.6	35.6	N.E. . . .	Air.	S. & C. S. 1	To northeastward. Max. temp., 45°.6; min., 35°.6.
											[29°.6.
22	7 A. M.	.441	48.0	31.0	30.7	31.2	33.7	E.S.E. . .	Air.	0	Heavy frost; cloud banks about Andes. Min. wet,
	9	.456	49.8	38.5	36.4	38.0	39.5	Calm . .	0	0	K. and C. K. about Andes; smoky to westward.
	Noon.	.456	52.4	43.4	40.6	43.9	44.2	Westward .	1	C. K. 4 . .	Very thin; hazy.
	3 P. M.	.431	59.2	47.2	42.6	47.8	47.8	S.W. . .	1	0	K. and haze about Andes.
	6	.430	58 2	42.4	39.0	42.7	43.6	Calm . .	0	0	C. and C. S. to westward.
	9	.419	55.5	35.7	34.7	36.1	38.0	Calm . .	0	0	
	Midn't.	28.392	57.7	33.6	32.8	34.0	36.1	N.E. . . .	Air.	0	Max. temp., 48°.4; min., 33°.2.

* Hard rain commenced about 2 A. M.; the rain gauge was not set out until 3h. 20m. A. M., when the rain had moderated considerably. Quantity of rain during day, 1.038 in.

† Quantity of rain, 0.312 in.

‡ Snow much lower on both ranges of mountains than we have ever before seen it.

Quantity of rain, 1.926 in.

JULY, 1852—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Register. Wet.	Register. Max.	Register. Min.	Direction.	Force.		
		Inches.	°	°	°	°	°				
29	7 A. M.	28.031	53.6	43.9	40.6	43.6	44.5	Calm . .	0	S. & C. S. 10	Min. wet, 39°.4.
	9	.037	56.8	50.0	44.8	48.3	48.5	Calm . .	0	S. & C. S. 10	
	Noon.	.063	58.5	57.0	50.5	56.7	56.5	Calm . .	0	S. & C. S. 10	
	3 P. M.	.111	61.0	53 3	47.8	53.0	52.8	Eastward .	1	S.,C.K.&S.10	Clear streak to westward.
	6	.139	59.0	48.8	45.7	49.2	49.5	N.E. . .	Air.	C.S. & K.S.10	Do.
	9	.175	58.4	48.5	45.0	48.3	48.6	S.W. . .	1	K. S. 10 . .	From northwest.
	Midn't.	.256	59.2	47 0	44.8	47.0	47.3	N.E. . .	1	Rain . . .	Began about 9h. 30m. P. M. Max. temp., 58°.8; min., 43°.7.
30	7 A. M.	.335	55.1	46.0	44.6	45.7	46.3	N.E. . .	Air.	Foggy. . .	Breaking away. Min. wet, 41°5.
	9	.338	56.9	50.8	48.1	50 5	50.8	N.W. . .	2	Foggy . .	Fog blowing over again.
	Noon.	.304	58.4	58.0	51.6	55.8	55.2	N.E. . .	1	0	K. about horizon.
	3 P. M.	.274	62 2	57.7	51.7	57.9	57.3	Eastward .	Air.	0	K. over Andes.
	6	.274	60 3	54.0	49.8	54.5	54.0	N.E. . .	1	0	Hazy about horizon.
	9	.272	60.0	46.8	45.3	47.2	48.2	N.E. . .	1	0	Quantity of rain for day, 0.820 in.
	Midn't.	.220	54.0	42.4	41.5	43.0	44.2	Calm . .	0	0	C. S. to N.E. Max. temp., 58°.7; min., 44°.2.
31	7 A. M.	.186	54.5	37.5	36.8	37.8	39 2	Eastward .	Air.	0	C. to westward. Slight frost. Min. wet., 36°.8.
	9	.199	57.3	47.0	45.5	46 0	46.4	N.W. . .	Air.	Hazy. . .	
	Noon.	.174	58.2	55.0	51.0	56.1	55.5	N.W. . .	1	0	Hazy to northward.
	3 P. M.	.161	62.0	59.7	52.0	59.2	58.5	W. . . .	2	0	C. S. over the coast range.
	6	.174	59.0	54.0	49.6	54 8	54.2	Calm . .	0	0	
	9	.192	59.5	45.5	44.5	47.8	48.0	E.S.E. . .	Airs	0	
	Midn't.	28.184	58.0	41.7	41.0	44.1	44.0	N'd & E'd. .	Airs.	0	Max. temp., 60°.4; min., 38°.8.

AUGUST, 1852.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Register. Wet.	Register. Max.	Register. Min.	Direction.	Force.		
		Inches.	°	°	°	°	°				
1	6 A. M.	28.150	55.5	36.0	35.4	37.0	38.5	S.E. . . .	Airs.	0	Min. wet, 34°.8.
	9	.171	55.0	51.0	48.0	52.0	51.5	Westward .	1	C. S. 1 . .	Taken late.
	Noon.	.160	55.7	56.7	51.0	58.2	57.8	W.S.W'd .	3	C. 7 . . .	
	3 P. M.	.157	59.5	60.0	51.2	61.0	60.0	W.S.W. .	4	C. 8 . . .	
	6	.228	58.0	50.0	47.7	52.0	52.2	Southward .	2	C. 1 . . .	To the southwestward.
	9	.300	59.3	45.0	42.7	46.2	46.8	E.S.E. . .	1	0	Bank of clouds to westward and northward.
	Midn't.	.306	55 2	44.5	42.5	44.9	45.7	N.E. . .	Air.	S. & N. S. 10	Clouded up from S. E'd. Max. temp., 69°.4; min., 38°.6.
2	7 A. M.	.239	54.1	43.0	41.0	43.1	43.8	N.E. . .	1	Fog . . .	Min. wet, 40°.6.
	9	.245	56.3	46.6	43.2	46.0	46.4	N.E. . .	1	Fog . . .	Lifting.
	Noon.	.188	54.3	52.6	48.2	54.2	54.2	S.W. . .	1	0	Smoky.
	3 P. M.	.169	57.6	57.9	51.3	57.9	57.4	S.W. . .	1	0	Do.
	6	.158	57.1	51.0	48.7	53.3	52.6	E.N.E. . .	1	0	Do. to westward.
	9	.125	55.1	44.4	43.6	46.0	46.7	N.E. . .	1	0	Bank of clouds to W.S.W.
	Midn't.	28.137	54.2	43.8	42.9	43.7	44.5	S.W. . .	3	Fog . . .	Max. temp., 58°.7; min., 43.°3.

AUGUST, 1832—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Stand-ard.	Register. Wet.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°				
3	7 A. M.	28.130	55.7	43.6	42.3	43.5	44.3	S.S.W. . .	1	Fog . . .	About 4*h*. 20*m*. P. M. a few drops of rain, but not enough to measure. Min. wet., 36°.5.
	9	.196	56.8	44.7	43.2	44.5	45.1	Southward .	Air.	Fog . . .	
	Noon.	.240	58.7	47.6	44.2	46 9	47.3	S.W. . .	1	Fog . . .	
	3 P. M.	.264	62.0	48 9	44.2	48.6	48.6	S.S.E. . .	Air.	S. & N. S. 10	Clear spots to northward.
	6	.258	58.6	45 3	43.3	46.0	46.7	Calm . .	0	S. & K. S. 1	To westward and southwestward.
	9	.240	57.1	40 3	40.0	41.3	43.0	Westward .	Air.	0	
	Midn't.	.235	54.7	37.0	37.0	38.0	39.5	N.E. . . .	1	0	Thin C. to northeastward. Max. temp., 50°.0; min., 39°5.
4	7 A. M.	.228	51.1	38.6	36.4	38.2	39.6	N.E. . .	Air.	S ,C.K.&C S.10	Clear spots to westward; slight frost. Min. wet, 34°.7.
	9	.260	53.3	44.1	41.7	42.6	43.4	N.E. . . .	Air.	S.,C. & K.S. 10	
	Noon	.264	55.0	51.2	45.6	49.8	50.0	E. . . .	Air.	S.,C. & K.S 10	Clear to westward.
	3 P. M.	.250	58.5	58.0	48.5	56.7	56.1	S.W. . .	1	C. & C. S. 10	Thin.
	6	.250	58.0	50.5	45.6	51.2	51.2	N.E. . . .	1	C. & C. S. 5	Thin.
	9	.267	57.3	42 5	40.3	43.0	44.2	E.N.E. . .	Air.	0	
	Midn't.	.273	55.0	38.2	36.6	40.6	39.2	Southward .	Airs.	C. & C. S. 4	Max. temp., 57°.0; min., 37°.8.
*5	6 A. M.	.246	54.7	37.5	36.6	37.7	39.4	N.E. . . .	Air.	C. & C. S. 3.	Mostly about horizon; slight frost. Min. wet, 34°.7.
	9	.265	54.5	47.7	43.9	46.6	46.8	S.W. . .	Air.	C. & C. S. 3.	Smoky.
	Noon.	.236	58.6	59.2	49.7	57 8	56.8	S.W. . .	Air.	0	Scattered C.
	3 P. M.	.214	61.0	64.2	51.8	61.8	61.2	S.W. . .	1	0	Smoky to westward.
	6	.220	60.7	55.8	49.7	56.6	56.3	N.E. . .	Air.	0	Do.
	9	.206	56.7	46.7	44.2	47.6	48.4	N.E. . . .	1	0	Taken at 9*h*. 30*m*.
	Midn't.	.237	56.7	44.5	41.7	44.8	45.8	N.E. . .	2	0	Max. temp., 61°.9; min. 38°.1.
†6	7 A. M.	.240	52.0	40.0	39.2	40.2	42.0	N.E. . .	Air.	0	C. & C. S. to southward. Min. wet, 38°.0.
	9	.250	55.7	50.7	45.3	49.0	49.2	S.W. . .	1	Smoky . .	Do.
	Noon.	.226	57.6	62.8	53.6	59.8	58.8	W. . . .	1	C. & C. S. 1	To southwestward; smoky about mountains.
	3 P. M.	.208	60.0	66.1	54.5	65.1	64.2	S.W. . .	Air.	C. & C. S. 5	
	6	.221	58.7	55.5	49.4	56.7	56.6	Eastward .	Air.	C. &. C. S. 5	
	9	.236	57.0	49.0	45.3	50.1	50.7	N.W. . .	Air.	C. & C. S. 5	
	Midn't.	.219	55.2	46.3	43.1	46.7	47.6	S. eastward	1	S. &. C. S. 6	Max. temp , 65°.3; min., 41°.6.
7	7 A. M.	.180	51 9	39.5	38.5	39.8	41.6	N.W. . .	Air.	C. & C. S. 2	About horizon. Min. wet, 38°.0.
	9	.186	55.0	50.3	46.5	48 7	48.8	Calm . .	0	C. & C. S. 10	
	Noon.	.156	57.5	63.0	53.7	60.7	59.8	S.W. . .	1	C.K.,S.&C.S.9	
	3 P. M.	.154	60.7	68.3	54.2	64.7	64.1	S.W. . .	1	C. & C. S. 10	
	6	.204	60.3	59.3	51.2	60.2	59.6	S.W. . .	1	C. & C. S. 9	
	9	.202	57.8	50.5	47.2	51.7	52.3	Calm . .	0	0	Clouds about horizon.
	Midn't.	.182	55.4	47.6	44 2	49.2	48.7	N.E. . .	1	C. & K. S. 5	Max. temp , 65°.4; min., 41°.2.
‡8	7 A M.	.156	53.6	42.0	39.0	42.2	43.5	N.E. . .	Air.	S. & C. S. 2	Min. wet, 37°.8.
	9	.168	56.3	55 0	49.2	52.8	52.6	N.E. . . .	Air.	0	S. & C. S. to northward.
	Noon.	.146	58.6	66.7	54.2	65.3	64.3	S.W. . .	Air.	0	Smoky to northward.
	3 P. M.	.115	61.3	70.4	60.7	67.3	66.5	S.W. . .	Air.	0	
	6	.125	61.0	61.2	53.8	62.2	61.5	N.E. . . .	1	0	Do. to westward.
	9	.112	58.5	51.7	48.4	52.7	53.2	Calm . .	0	0	
	Midn't.	28.076	56.0	46 9	45.0	48.0	49.0	N.E. . . .	Air.	0	Max. temp., 67°.7; min., 42°.7.

* Rays to westward at 6*h*. 30*m*. A. M., point of convergence more to northward.

† Earthquake shock at 0*h*. 10*m*. 20*s*. to 25*s*., lasting till 0*h*. 10*m*. 28*s*. to 35*s* A. M. It was quite slight.

‡ Zodiacal light very unusually bright as late as 8 o'clock, P. M.

AUGUST, 1853—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Stand-ard.	Register. Wet.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°				
*9	7 A. M.	28.087	54.1	43.1	40 2	43.3	44.5	N.E. . . .	Air.	0	Min. wet, 38°.8.
	9	.113	57.6	54.0	48.1	51.7	51.7	N.W. . .	Air.	0	
	Noon.	.111	61.1	67.9	55.3	63.7	62.7	N.W. . .	Air.	0	
	3 P. M.	.112	62.3	66.6	61.2	67.2	66.3	W. . . .	3	0	K. and C. K. over Andes. Position of "max. and
	6	.154	60.7	57.3	52.7	58.6	58.6	N.E. . . .	Air.	0	Smoky to westward. [min." ther. changed.
	9	.146	58.7	51.9	49.2	51.3	52.0	Calm . .	0	0	Late.
	Midn't.	.155	60.0	46.8	45.6	47.0	47.8	N.W. . .	Air.	0	Max. temp., 69°.2; min., 45°.6.
10	7 A. M.	.141	51.9	40.9	40.0	41.0	42.6	Calm . .	0	Fog . . .	Min. wet, 38°.3.
	9	.186	55.2	45.5	43.0	45.0	45.6	S. eastward	Air.	Fog . . .	
	Noon.	.233	56.8	50.4	47.7	50.8	51.0	Southward .	Air.	Fog . . .	Fog lifting.
	3 P. M.	.198	60.0	55.0	50.1	55.0	54.7	N.W. . .	1	Fog . . .	Breaking away to eastward.
	6	.220	59.0	50.3	48.3	50.6	51.0	N.E. . . .	1	Fog . . .	
	9	.212	57.2	47.6	46.2	47.8	48.3	N.E. . . .	2	Fog . . .	Heavy.
	Midn't.	.204	57.6	46.5	45.9	46.4	47.1	N.E. . . .	1	Fog . . .	Max. temp., 55°.2; min., 41°.6.
11	7 A. M.	.190	53.7	42.0	40.9	41.8	43.0	N.W. . .	1 & 2	Fog . . .	Breaking away over head. Min. wet, 39°.8.
	9	.118	58.0	48.2	45.1	47.7	48.3	N.W. . .	1	Fog . . .	
	Noon.	.064	57.2	55.5	51.1	56.2	56.0	S.W. . .	3	0	K. and K. S. about mountains to westward.
	3 P. M.	.081	58.0	53.5	47.8	53.7	53.5	Westward .	4	K. S. 1 . .	On the hills from W.S.W. by N. to N.E.
	6	.091	59.3	47.4	44.7	47.9	48.2	S.W. . .	3	S. 10 . . .	
	9	.175	57.4	46.8	44.7	47.0	47.6	S.S.E. . .	2 & 3	S. 10 . . .	
	Midn't.	.945	58.7	46.1	44.2	46.0	46.6	N.E. . . .	1	S. & C. S. 10	A few stars visible over head.
†12	7 A. M.	.238	56.0	45.6	43.6	45.1	45.7	E. . . .	2	S. & N. S. 10	From southward. Min. wet, 41°.6.
	9	.273	58.6	47.7	45.3	47.7	48.2	N.W. . .	Air.	S. & N. S. 10	From southwestward. Rain began about 10h. 30m.
	Noon.	.325	58.3	49.3	46.6	49.5	49.6	Northward .	1	Rain . . .	Clouds from N.N.W.
	3 P. M.	.304	60.4	58.6	50.3	58.3	58.3	N.E. . . .	Air.	S. & K. S. 4	
	6	.360	59.2	50.8	47.5	50.8	51.2	W. . . .	Air.	S. & K. S. 8	Heavy about Andes; probably raining there.
	9										Quantity of rain, 0.340 in.
	Midn't.	.404	58.3	42.1	41.6	42.0	43.3	N.E. . . .	Air.	0	Max temp., 58°.4; min., 43°.3.
‡13	7 A. M.	.382	51.1	37.8	36.7	37.2	39.7	Eastward .	Air.	C. & C. S. 1	Slight frost. Min. wet, 35°.7.
	9	.394	54.1	48.4	45.6	47.4	48.4	N. eastward	Air.	0	Smoky to E'd and S'd. K. and K. S. about moun-
	Noon.	.365	56.3	56.9	50.6	56.3	56.6	N.W. . .	Air.	C. & C. S. 1	Do. [tains to westward.
	3 P. M.	.334	58.8	60.8	52.1	61.0	60.8	Calm . .	0	Smoky . .	C. and C. S. to southward.
	6	.322	58.3	54.9	49.8	55.1	55.1	N.E. . . .	Air.	0	C. & C. S. about horizon. Red light to eastward.
	9	.299	55.8	47.5	45.4	47.1	47.8	N.W. . .	Air.	0	[temp., 61°.0; min., 38°.1.
	Midn't.	.935	54.7	42.5	41.2	42.6	43.6	N.W. . .	Air.	0	Taken at 2 A. M. Bank of clouds to westward. Max.
14	7 A. M.	.190	54.7	39.7	36.7	41.0	39.3	Eastward .	Air.	C. & C S. 3	Min. wet, 36°.4.
	9	.178	52.9	50.3	46.2	49.7	49.7	N.W. . .	1	0	Few scattered C. Smoky to southward.
	Noon.	.151	57.3	64.5	59.7	63.7	62.5	S. westward	1	0	Do. Do. to eastward.
	3 P. M.	.115	61.0	70.2	54.2	68.6	67.4	S.W. . .	Air.	C. & C. S. 4	Very thin.
	6	.110	60.7	61.5	52.0	61.8	61.3	N.E. . . .	Air.	C. & C. S. 5	
	9	.136	58.6	52.5	48.3	53.0	53.1	Calm . .	0	C. S. & S. 7	
	Midn't.	28.166	59.4	51.5	46.8	52.0	52.1	Eastward .	1	S. & C. S. 7	Max. temp., 68°.8; min., 40°.6.

* For the 3 P. M. observations the "max. and min." thermometers were placed in a position similar to that of the air thermometer, to ascertain whether the difference of ranges were owing to difference of location.

† Earthquake: first shock, 11h. 58m. 32s. to 40s. A. M.; second, 11h. 58m. 40s. to 11h. 59m. 10s. The second was more violent than the first; little or no noise, and shocks not very severe, apparently from northwest. It occurred at Valparaiso at precisely the same time, the preconcerted signal having been struck by operators at both ends of the telegraph line at the *same instant*. J. M. G.

At 10h. 45m. P. M., sharp lightning to northeast over the Andes.

‡ Zodiacal light very distinct and bright, extending as high as α Virginis at 7 P. M.

AUGUST, 1852—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Stand-ard.	Register. Wet.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°				
15	7 A. M.	28.129	56.3	49.9	45 0	49.3	49.8	N.W. . .	Air.	C. & C. S. 10	Min. wet, 43°.0.
	9	.159	59.1	60.0	51.0	57.3	56.7	Westward .	Air.	C. & C. S. 10	
	Noon.	.193	60.5	67.9	55.7	66.6	65.6	S.W. . .	Air.	C.,C.S.&C.K.9	
	3 P. M.	.190	62.0	67.1	56.8	67.5	66.7	S.W. . .	2	S. & C. S. 10	
	6	.200	61.7	61.4	54.4	62.2	61.8	S.W. . .	Air.	S. & C. S. 10	
	9	.257	60.1	56.5	52.2	57.3	57 3	W. . . .	Air.	S. & C. S. 10	
	Midn't.	.276	60.2	54.5	51.0	55.2	55 2	N. westward	Air.	C. S. 10 . .	Taken at 12h. 45m. Max. temp., 68°.0; min., 49.0.
16	6 A. M.	.258	57.7	50.4	48 4	51.1	51.6	Westward .	Air.	C. S. & S. 10	Min. wet, 45°.6.
	9	.326	58.8	56.6	52.2	57.0	56.7	W.N.W. .	2	C.S.,K.&K.S.9	Clear streak to westward.
	Noon.	.296	59.8	63.5	56.3	63.2	62.3	N.W. . .	3	S. & K. S. 10	Clear in streaks; gusty.
	3 P. M.	.251	61.6	65.7	57.7	65.7	65.0	S.E . . .	1	S.,C.&K.S.10	Do.
	6	.272	61.3	60.0	55.7	60.7	60.6	Calm . .	0	C.S.,C.&K.S.6	
	9	.250	59 3	54.3	52.2	55.3	55.4	S.E. . . .	Air.	0	
	Midn't.	.234	59.0	48.0	46.6	49.6	50.0	Calm . .	0	0	S. & C. S. to W'd. Max. temp., 66°.6; min. 49°.5.
17	7 A. M.	.175	56.0	49.7	47.8	50.2	50.4	Calm . .	0	C. & C. S. 3	Min. wet, 46°.6.
	9	.174	56.9	56.9	54 2	55.8	55.6	Calm . .	0	C. S. & C. 4	
	Noon.	.168	60.3	67.5	58.7	65.6	65.0	S.W. . .	1	S. 10 . . .	
	3 P. M.	.094	62.0	68.8	57.5	67.3	66.8	S.S.W. . .	Air.	S.,C.&K.S.10	[evening.
	6	096	62.0	62.3	56.3	63.4	63.2	Calm . .	0	S.,C.& K.S.10	Clear in spots; lightning to southward during the
	9	.104	60.8	56.7	53.3	57.6	57.8	Eastward .	Air.	S. & C. S. 10	A few stars visible, but dim.
	Midn't.	.108	60.3	55.8	51.4	56.7	56.6	N.E. . . .	1	S. 10 . . .	Max. temp., 67°.2; min. 49°.2.
*18	7 A. M.	.057	58.2	50.9	48.4	52.0	52.2	S.W. . .	4	S. & N. S. 10	Min. wet, 37°.9.
	9	.098	59.6	52.0	49.6	52.7	52.5	S.S.E. . .	1	S. & N. S. 10	From southward.
	Noon.	.104	57.0	49.0	47.6	49.8	50 3	S.W. . .	1	Rain . . .	Hard; commenced about 10h. 45m.
	3 P. M.	138	62.2	47.2	45.8	47.7	48.2	S.W. . .	3	Rain . . .	Hard; clouds from southwestward.
	6	.167	59.8	44.9	43 0	45.9	46.0	N.E. . .	1	Rain . . .	Hard.
	9	.237	60.6	40.6	38.7	41.8	42.7	N.E. . .	3 to 5	Rain . . .	Very hard; gusty.
	Midn't.	.232	59.8	40.8	38.7	41.3	42.2	N.E. . .	3	Rain . . .	Hard; gusty. Max. temp., 57°.7, min., 41°.8.
†19	7 A. M.	.191	54.0	40.6	39.0	41.2	42.0	E. . . .	Air.	S. & N. S. 9	Clear to W'd and S. W'd. Min. wet, 38°.6.
	9	.191	56.2	42.1	40.2	42.3	43.2	S.W. . .	Air.	S. & N. S. 9	Clear to W'd and S. W'd; clouds from S. W'd.
	Noon.	.205	55.8	45.6	43.0	45.5	45.8	S.W. . .	Air.	S. & N. S. 10	Do. do. clouds from W'd.
	3 P. M.	.195	58.7	47.6	44.3	47.7	48.0	S.W. . .	Air.	S. & N. S. 9	Do. do. do.
	6	.210	56.2	44.8	41.4	45.2	45.7	N.E. . . .	Air.	S. & N. S. 9	Clear streak to westward.
	9	.203	55.3	43.1	40.9	43 6	44.3	N.E. . . .	Air.	S. & N. S. 10	Do. do.
	Midn't.	.182	57.8	47.7	41.8	43.8	44.3	Calm . .	0	0	Max. temp., 48°.2; min., 41°.6.
‡20	6 A. M.	.176	52.0	42 0	40.0	42.1	42.8	Eastward .	Air.	Rain . . .	Min. wet, 39°.2.
	9	.206	56.3	49.0	44.4	48.1	48.2	W.S.W. .	1	N.S.K.C.K.10	Lower strata (N. S) from S. W; upper (K. & C. K.)
	Noon.	.216	56.0	48.9	45.2	48.8	49.0	Southward .	Air.	N. S. 10 . .	from northward.
	3 P. M.	.230	58.0	45.7	42.6	47.0	47.2	W.S.W. .	2	N. S. 10 . .	
	6	.279	56.0	42 4	39.7	42.6	43.5	N.E. . .	1	Rain . . .	Light; commenced about 4h. 15m.
	9	.324	54.8	41.7	39.6	41.7	43.0	Calm . .	0	Rain . . .	Breaking away to westward. Some stars visible.
	Midn't.	28.344	53.0	41.0	39.5	41.2	42.4	N.E. . .	Air.	N. S. 10 . .	Max. temp., 49°.8; min., 42°.0.

* At 7 A. M., from northwest. Strata of clouds to westward sweeping round the valley from southwest. Loud thunder about noon. Quantity of rain during the day, 4.497 in.

† At 7 A. M., snow very low on the mountains. Occasional drops of rain throughout the day.

‡ At 6 A. M., a few drops; during the night it rained pretty hard. Quantity of rain for to-day and yesterday, 0.447 in.

AUGUST, 1852—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Register. Wet.	Register. Max.	Register. Min.	Direction.	Force.		
		Inches.	°	°	°	°	°				
21	7 A. M.	28.412	54.0	40.8	39.1	40.6	41.6	S.E. . . .	Air.	N. S. & S. 10	From northwest; breaking to W'd. Min. wet, 35°.7.
	9	.442	54.2	45.0	41.8	44.2	44.7	Southward .	Air.	S. & K. S. 10	Do. do.
	Noon.	.438	55.0	47.7	43.5	47.2	47.4	S.W. . .	Air.	K. S. 10 . .	From southeastward; do.; over head.
	3 P. M.	.412	56.9	48.7	43.5	49.2	49.2	S.W. . .	Air.	K. 2 . . .	Mostly about Andes; lower stratum from S. E'd;
	6	.399	54.8	46.1	42.6	46.3	47.3	Calm . .	0	0	Few K. about Andes. [upper from W'd.
	9	.399	52 6	40.8	38.5	40.7	42.3	Eastward .	Air.	0	
	Midn't.	.394	56.3	37.9	36.8	38.6	40.2	Calm . .	0	0	Max. temp., 51°.8; min., 39°.8.
22	7 A. M.	.305	47.1	37.7	36.1	37.0	38.5	Calm . .	0	0	Heavy frost. Taken late. Min. wet, 31°.8.
	9	.302	49.5	42.2	38.6	41.0	42.0	Northward .	Air.	0	Smoky to westward
	Noon.	.253	52.3	50.7	44.7	49.6	49.5	W. . . .	Air.	0	
	3 P. M.	.193	55.6	55.8	47.7	55.2	54.7	S.W. . .	Air.	0	
	6	.184	54.7	50.7	46.5	50.6	50.7	N.E. . . .	Air.	0	
	9	.179	51.3	42.0	40.3	42.7	44.0	S.S.E. . .	Air.	0	
	Midn't.	.148	54.0	38.2	37.8	39.3	41.0	Eastward .	Air.	0	Max. temp., 55°.4; min., 35°.2.
23	6 A. M.	.092	52.9	34.0	33.4	34.6	36.5	N.N.E. . .	Air.	0	Frost. Min. wet, 33°.5. Rays to westward, very
	9	.094	53.3	48.4	43.9	46.3	46.7	S. westward	Air.	0	beautiful, from 6h. 15m. A. M., to 6h. 40m.
	Noon.	.095	55 5	62.7	52.3	58.7	58.3	S.W. . .	Air.	0	
	3 P. M.	.084	58.9	68.0	53.6	66.1	65.3	S.W. . .	Air.	0	
	6	.104	58.7	58.8	52.3	58.8	59.0	N.E. . . .	Air.	0	Slightly smoky to westward.
	9	.110	56.8	48.4	45.0	49.3	50.1	S.W. . .	Air.	0	
	Midn't.	.100	57.4	44.8	42.0	45.5	46.6	Southward .	Air.	0	Max. temp., 66°.2; min., 36°.1.
24	7 A. M.	.130	52.1	40.5	39.3	40.1	42.1	S. eastward.	Air.	0	Min. wet, 37°.9.
	9	.178	52.8	48.1	45.2	47.7	48.3	S. westward	1	0	Heavy fog bank to westward and southwestward.
	Noon.	.168	53.8	53.5	49.8	53.2	53.5	W.S.W. .	1	0	Do.; few scattered K.
	3 P. M.	.127	57.0	59.1	53.7	59.6	59.5	W.S.W. .	1	0	Smoky.
	6	.154	55.6	48.7	47.1	51.0	51.5	S.S.W. . .	Air.	0	Do. to westward; heavy fog bank to eastward.
	9	.143	54.8	49 0	47.1	49.3	50.3	N.E. . . .	Air.	Fog . . .	
	Midn't.	.173	57.2	47.0	45.7	47.4	48.6	S.S.W. . .	3	Fog . . .	Max. temp., 59°.7; min., 41°.6.
25	7 A. M.	.133	55.0	47.0	44.5	47.0	48.0	N.E. . . .	Air.	Fog . . .	Min. wet, 44°.2.
	9	.143	56.8	49.5	45.8	48.8	49.7	Calm . .	0	Fog . . .	
	Noon.	.164	55.5	53.0	48.5	52.1	52.5	S. eastward.	Air.	S. & N. S. 10	
	3 P. M.	.145	59.7	59.5	53.0	58.2	58.6	Calm . .	0	S. 10 . . .	From southeastward.
	6	.100	58.0	52.0	49.8	52.3	53.3	N.W. . .	Air.	S. 10 . . .	
	9	.075	56.2	48.0	46.7	48.7	50.2	N.E. . . .	Air.	S. 10 . . .	
	Midn't.	.071	56.1	46.0	45.2	46.6	48.3	S.E. . . .	Air.	S. 10 . . .	Halo around the moon. Max. temp., 58°.4; min., 47°.5.
26	8 A. M.	.122	54.8	45.5	44.4	45.5	47.0	N.W. . .	Air.	Fog . . .	
	9	.141	55.6	45.7	44.3	45.4	47.0	S.W. . .	1	Fog . . .	Wind cold.
	Noon.	.136	55.3	49.7	46.4	49.2	50.3	S.W. . .	Air.	Fog . . .	Lifting.
	3 P. M.	.173	58.0	49.8	46.1	49.6	50.8	S.W. . .	2	S. & N. S. 10	Rain on mountains to eastward?
	6	.189	56.7	43.3	45.3	48.3	49.7	S.S.W . .	Air.	S. & N. S. 10	
	9	.219	56.8	47.3	44.9	47.3	48.7	N.E. . . .	1	S. & K. S. 10	Lower stratum from N.N.E.; upper from N.W.
	Midn't.										About 10 P. M. clouds broke away.
27	6 A. M.	.093	51.0	38.7	37.8	39.3	42.0	S. eastward.	Air.	S. 10 . . .	Min. wet, 36°.8.
	9	.141	54.2	46.6	43.9	45.5	47.2	S.W. . .	1	S. 10 . . .	
	Noon.	.112	55.0	52.5	47.6	51.0	52.1	Southward .	Air.	S. 10 . . .	
	3 P. M.	.139	56.7	50.0	47.4	49.7	51.0	S.S.W. . .	Air.	Rain . . .	Light clouds from northwest.
	6	.182	55.8	48.0	46.3	47.8	49.5	N.W. . .	1	Rain . . .	Do.; quantity of rain, 0.250 in.
	9	.206	56.2	45.0	44.1	45.2	47.2	N.E. . . .	Air.	Foggy . .	Clouds breaking away; stars visible. Taken late.
	Midn't.	28.180	57.2	43.0	42.9	43.6	46.0	N.W. . .	Air.	C. S. & C. 3	Fog bank about mountains to westward. Max. temp., 52°.4; min., 41°.2.

AUGUST. 1852—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Standard.	Register. Wet.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°				
28	7 A. M.	28.165	54.2	43.5	42.2	42·9	45 2	N.E. . .	Air.	S. & N. S. 10	Min. wet, 40°0.
	9	.179	55.0	46.0	43.9	45.0	47.0	N.E. . .	Air.	S. & N. S. 10	
	Noon.	.148	54.8	52.1	47.8	51.0	52.3	Southward .	Air.	Rain . . .	Began about 9*h*. 15*m*.
	3 P. M.	.150	58.7	49.2	47.1	49.2	50.7	S.S.W. . .	Air.	Rain . . .	Clouds from north-northwestward.
	6	.169	57.4	47.6	45.7	47.6	49.3	N.E. . .	Air.	Rain . . .	Hard: clouds from northward.
	9	.207	58.0	47.1	45.2	46.8	48.7	N.W. . .	Air.	Rain . . .	Quantity of rain during day, 1.143 *in.* [min., 43°.5.
	Midn't.	.293	58.6	46.9	44.2	46.3	48.6	N.W. . .	1	K. & K. S. 3	Heavy about mountains. Max. temp., 51°.7;
29	6 A. M.	.247	51.7	43.1	40.6	42.7	45.4	Calm . .	0	C. & C. S. 9	Min. wet, 40°.6.
	9	.297	53.3	54.2	47.7	53.4	54.7	Calm . .	0	C. & C. S. 10	
	Noon.	.271	56.2	61.4	51.2	58.8	59.5	N.W. . .	1	S. 10. . .	
	3 P. M.	.238	58.2	56.1	50.6	56.3	57.3	S.W. . .	2	S. & N. S. 10	
	6	.293	57.3	52.2	48.8	52.2	53.7	N.E. . .	1	Rain . . .	Commenced about 5*h*. 40*m*.; clouds from north.
	9	.307	58.0	48.5	45.4	49.8	50.7	N.E. . .	Air.	Rain . . .	
	Midn't.	.238	55.6	47.8	44.5	48.0	49.5	N.E. . .	1	S. & N. S. 10	Max. temp., 59°.3; min., 44°.5.
30	7 A. M.	.227	52.1	47.4	45.5	47.2	49.2	Calm . .	0	Rain . . .	Min. wet, 43°.7. Rain since August 28, 2.185 *in.*;
	9	.244	51.2	49.8	46.6	49 1	50.9	W.S.W. .	1	N. S. 10. .	from midnight to end of shower, 0.130 *in.*
	Noon.	.237	56.3	53.8	48.7	52.4	53.5	Calm . .	0	N. S. 10. .	
	3 P. M.	.246	59.5	50.5	48.2	50.5	51.8	E.S.E. . .	1	Rain . . .	Hard: clouds from northwest.
	6	.242	58.2	50.3	48.7	50.5	52.3	W.S.W. .	1	N. S. 10. .	
	9	.313	59.1	46.5	44.8	46.9	49.0	Southward .	1	Rain . . .	Hard.
	Midn't.	.333	54.8	45.3	43.7	45.4	47.2	N.E. . .	2	Rain . . .	Hard: gusty. Max. temp., 54°.7; min., 47°.2.
31	7 A. M.	.336	52.3	43.4	42.1	43.7	44.3	Eastward .	Air.	N. S. & C.S. 6	N.S., heavy about mountains. Min. wet, 39°8.
	9	.347	52.7	47.3	44.7	47.8	47.7	Calm . .	0	K. & K. S. 7	[east.
	Noon.	.334	55.5	54.6	49.0	53.8	53.7	W.N.W. .	1	K. & K.S. 10	Clear in spots; upper stratum of C. K. from south-
	3 P. M.	.300	57.2	55.0	47.2	51.2	54.0	S.W. . .	1	C. K. 3 . .	K.: heavy about mountains to eastward.
	6	.324	57.2	50.3	45.5	51.3	51.5	N.W. . .	Air.	C. & C. S. 4	Do. Zodiacal light perceptible this evening.
	9	.336	55.2	45.0	42.9	45.5	46.5	N.W. . .	1	C. & C. S. 1	To eastward.
	Midn't.	28.318	54.5	41.7	39.8	41.8	43.1	N.W. . .	Air.	C.S.&K.S. 2	Do. Max. temp., 55°.2; min., 42°.9.

SEPTEMBER, 1852.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Standard.	Register. Wet.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°				
1	7 A. M.	28.298	50.7	38.1	37 8	39.0	40.0	Calm . .	0	0	Min. wet, 33°·5.
	9	.326	53.8	45.5	43.4	44.5	45.7	Calm . .	0	0	Few scattered K.
	Noon.	.280	54.2	54.2	49.5	53.3	53.3	S.W. . .	1	0	
	3 P. M.	.234	56.2	59.3	50.8	58.2	57.7	Calm . .	0	0	Smoky to westward.
	6	.253	55.8	52.2	44.3	52.6	52.7	S.S.W. . .	1	0	Do. Wind cold.
	9	.258	55.5	44.9	41.9	45.4	46.5	N E. . .	1	0	
	Midn't.	28.199	53.7	40.5	38.7	40.7	42.3	N.E. . .	1	0	Taken late. Max. temp., 58°.5; min., 37°.6.

SEPTEMBER, 1852—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Stand-ard.	Register. Wet.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
		Inches.	°	°	°	°	°				
2	7 A. M.	28.196	52.8	49.2	39.3	41.1	42.3	N.E. . . .	Air.	0	Min. wet, 33°.0.
	9	.114	53.1	47.8	44.3	46.0	46.4	N.E. . . .	Air.	0	Smoky.
	Noon.	.071	55.2	63.2	54.3	59.7	59.1	S.W. . .	Air.	0	Do.
	3 P. M.	.044	58.7	69.7	58.6	64.4	64.6	S.W. . .	Air.	0	Do. Difference of thermometers probably owing
	6	.064	59.3	61.2	53.7	60.3	60.6	S. eastward	Air.	0	[to dampness of wall newly whitewashed.
	9	.066	58.7	51.8	48.3	51.9	52.8	N.E. . . .	Air.	0	Zodiacal light bright at 7 P. M.
	Midn't.	.035	56.6	45.9	43.9	46.7	47.8	Eastward .	Air.	0	Max. temp., 65°.7; min., 37°.3.
3	7 A. M.	.208	54.0	47.1	45.4	47.7	47.7	Eastward .	Air.	0	C. & C. S. to northward. Min. wet, 41°.6.
	9	.247	54.4	51.6	48.6	51.7	51.7	S. westward	3	K. & K. S. 6	From S. westward. Few C. above the K.
	Noon.	.277	57.5	57 2	51.4	56.5	56 3	E.N.E. . .	3	K. & K. S. 10	Clear in spots; clouds from northeast.
	3 P. M.	.291	61.2	59.7	52.8	59.7	59.3	S.W. . .	2	K.,K.S.&C.K.6	From southwest.
	6	.308	59.7	55.3	51.3	56.2	56.2	W. by S. .	1	0	S. & K. S. heavy about Andes. Zodiacal light?
	9	.326	57.4	50.0	47.7	50.8	51.3	E.N.E. . .	Air.	0	
	Midn't.	.295	57.1	46.7	45.4	47.7	48.3	Eastward .	Air.	C. & C. S. 2	To southwestward. Max. temp., 59°.8; min., 45°.6.
4	7 A. M.	.269	55.2	49.6	46.9	49.0	49.0	S.W. . .	Air.	C. & C. S. 2	Very thin; smoky. Min. wet, 42°.3.
	9	.272	57.3	54.3	51.2	53.3	53.3	S.W. . .	1	C. & C. S. 2	Do. do.
	Noon.	.244	58.6	63.1	56.2	61.6	61.2	S.W. . .	1	C.,C.K. & S.3	Do. do. to northward.
	3 P. M.	.214	60.6	64.6	57.2	64.6	64.2	S.W. . .	2	C. & C. S. 10	Do. Heavy bank of clouds coming over moun-
	6	.240	60.1	57.5	54.5	58.7	58.6	S.E. . .	1	C. K. 7 . .	C. do. do. do. [tains to W'd.
	9	.243	59.8	53.0	51.3	53.8	54.3	Calm . .	0	0	Clouds about horizon.
	Midn't.	.238	58.7	50.8	48 8	51.8	52.2	N.W. . .	3	S. 10 . . .	Max. temp., 64°.7; min., 44°.7.
5	7 A. M.	.241	58.0	51.4	49.5	51.7	51.7	N.W. . .	Air.	Fog . . .	Min. wet, 44°.9.
	9	.266	58.6	55.1	51.3	54.3	53.8	Calm . .	0	Fog . . .	
	Noon.	.266	59.7	57.5	52 2	57.7	57.3	S.W. . .	1	S. & N. S. 10	
	3 P. M.	.230	60.9	60.0	52.4	61.7	61.8	S.W. . .	1	K. 1 . . .	Scattered; heavy about Andes.
	6	.294	58.6	54.8	49.3	56.2	56.0	S.W. . .	1	K. & K. S. 7	Clear in spots; do.
	9	.238	57.3	48.5	46.7	49.6	50.3	S.W. . .	2	K. & K. S. 2	Mostly about horizon to N. eastward. [min., 47°.8.
	Midn't.	.227	59.0	47.1	44.9	47.1	47.8	N.E. . .	1	S. & K. S. 3	Do. do. Max. temp., 62°.3;
6	7 A. M.	.252	55.0	47.0	45.2	47.3	47.8	Calm . .	0	S. & K. S. 10	Bank of fog about base of mountains. Min. wet,
	9	.280	56.9	50.6	47.3	51.0	51.1	Calm . .	0	S. & K. S. 10	Do. do. do. [41°.4.
	Noon.	.273	58.0	59.0	50.8	60.1	60.1	S.W. . .	1	S. & K. S. 10	Lower stratum from N.W., upper from S.S.E.
	3 P. M.	262	60.2	58.4	50.7	58.8	58.4	S.W. . .	2	K. 5 . . .	Zodiacal light very bright this evening.
	6	.276	59.0	51.9	47.7	52.8	53.3	S.S.W. . .	2	0	S. about mountains to eastward; few scattered C.
	9	.308	57.7	46.2	44.3	47.7	48.5	N.W. . .	Air.	0	Do. do do.
	Midn't.	.290	55.8	42.8	41.4	43.8	44.8	Calm . .	0	0	C. S. to westward. Max. temp., 62°.1; min., 44°.8.
7	7 A. M.	.306	52.9	41.8	41.6	42.7	42.7	Calm . .	0	0	Sun shining on box of wet bulb; S. & C.S. to N'd. Min.
	9	.324	54.8	50.2	46.3	49.2	49.2	N.W. . .	Air.	0	Fog about mountains to eastward. [wet, 35°.6.
	Noon.	.303	56.3	57.9	50.7	56.7	56.2	N.W. . .	2	0	Do. do.
	3 P. M.	.276	59.5	61.5	51.0	61.0	60.2	W.S.W. .	3	0	
	6	.304	58.3	53.7	45.8	54.7	54.8	N.E. . .	Air.	0	C. & C. S. to S. westward.
	9	.324	56.3	47.5	43.4	48.7	49.6	N.N.E. . .	Air.	0	
	Midn't.	.305	55.9	42.7	40.7	44.3	45.2	N.E. . .	1	0	Max. temp., 61°.5; min., 39°.7.
8	7 A. M.	.264	54.0	44.9	41.6	45.3	45 6	N.E. . .	Air.	0	C. S. to westward. Min. wet, 37°.2.
	9	.256	55.8	52.8	46.8	50.6	51.2	N.W. . .	Air.	0	
	Noon	.214	57.6	62.0	52.3	61.0	61.0	Calm . .	0	0	Somewhat smoky.
	3 P. M.	.170	60.0	67.3	54.6	66.2	66.0	S.S.E. . .	1	0	
	6	.184	59.9	59.6	50.7	60.2	60.5	Calm . .	0	0	Do. to westward.
	9	.184	57.3	51.2	47.3	52.6	53.7	Calm . .	0	0	
	Midn't.	28.174	56.9	47.5	44.8	48.8	50.3	Calm . .	0	0	Max. temp., 65°.9; min., 41°.5.

SEPTEMBER, 1852—Continued.

DAY.	HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
			Att'd.	Standard.	Register.			Direction.	Force.		
					Wet.	Max.	Min.				
		Inches.	°	°	°	°	°				
9	7 A. M.	28.150	54.0	50.1	45.9	50.3	50.6	W.S.W. .	1	0	Very smoky. Min. wet, 40°.1.
	9	.165	55.8	56.9	49.6	54.0	54.7	N.W. . .	Air.	0	Smoky.
	Noon.	.177	58.3	64.5	55.5	62.6	62.8	S.W. . .	1	0	Do. to northward.
	3 P. M.	.158	61.0	66.4	57.0	66.5	66.3	W.S.W. .	1	0	Bank of clouds rising to westward.
	6	.184	60.3	54.5	52.2	56.6	57.3	S.S.E. . .	Air.	0	S. and C. S. to westward.
	9	.216	57.3	49.1	48.3	50.7	52.2	N.W. . .	Air.	S. & C. S. 3.	Do. to W'd and to N'd; clouding up.
	Midn't.	.167	56.7	50 5	49.1	51.6	51.6	S. westward	Air.	S. 10 . . .	Max. temp., 66°.5; min., 44°.7.
10	7 A. M.	.176	54.7	49.5	47.7	49.8	49.7	Calm . .	0	Foggy . .	Min. wet, 47°.3.
	9	.199	57.0	51.9	49.2	51.7	51.3	N.E. . . .	Air.	Foggy . .	
	Noon.	.146	58.5	62.6	56.4	62.4	62.6	S.W. . .	Air.	0	Smoky; heavy fog-bank to westward.
	3 P. M.	.111	61.9	67.0	59.7	66.3	65.4	S.W. . .	1	C. & C. S. 2	To southwestward.
	6	.142	61.7	59.5	56.4	60.3	60.0	Southward .	Air.	0	Scattered C.
	9	.142	60.2	53.5	52.1	54.6	54.6	N.E. . . .	Air.	0	
	Midn't.	.111	59.0	51.9	51.0	52.7	52.7	Calm . .	0	0	Max. temp., 66°.5; min., 49°.0.
11	7 A. M.	.130	56.7	50.8	49.3	51.2	50.8	N.W. . .	Air.	Foggy . .	Min. wet, 46°.6.
	9	.164	58.0	51.7	49.6	51.8	51.3	S. . . .	1	Foggy . .	
	Noon.	.110	58.0	60.5	54.1	61.5	61.0	S.E. . . .	2	Foggy 4 . .	Fog breaking away. [at 4h. 38m. P. M.
	3 P. M.	.089	60.7	63.0	57.8	63.2	62.3	S.W. . .	1	C. & C. S. 3	Thin; fog to southward. Slight earthquake shock
	6	.104	60.2	53.6	51.5	55.8	55.4	S.W. . .	Air.	C. & C. S. 7	Do. fog about base of mountains.
	9	.104	59.0	49.4	47.7	50.5	50.7	S.W. . .	1 & 2	Fog 10 . .	
	Midn't.	.079	56.7	47.5	46.7	48.1	48.5	S.W. . .	1	Fog 10 . .	Taken at 1 A. M.; a few drops of rian during the night. Max. temp., 63°.8; min., 48°.5.
12	7 A. M.	.168	54.3	45.2	43.6	45.2	45.4	S.S.W. . .	Air.	Fog 10 . .	Min. wet, 43°.0.
	9	.198	55.5	49.6	46.2	49.5	49.1	S.S.W. . .	Air.	Fog 10 . .	
	Noon.	.190	57.1	54.1	48.4	53.6	53.0	S. eastward	Air.	Fog 10 . .	Lifting.
	3 P. M.	.103	58.4	57.8	51.6	58.1	58.0	S.W. . .	Air.	K., C. K. & C. 4	4h. 6m. P. M., two very slight earthquake shocks.
	6	.070	58.5	53.5	49.3	54.0	54.0	N.W. . .	Air.	S. & C. S. 1	About mountains.
	9	.106	56.2	48.5	46.0	49.0	49.0	N.E. . . .	Air.	S. & C. S. 2	Very hazy.
	Midn't.	.074	54.3	46.5	44.0	46.5	47.0	E.N.E. . .	2	N., or fog 10	Max. temp., 62°.0; min., 44°.0.
											[ber, 0.807in. Min. wet, 43°.6.
13	6 A. M.	.161	53.0	46.9	44.7	46.7	46.8	N.W. . .	Air.	Foggy . .	Quantity of rain during to day and 12th of Septem-
	9	.197	56.0	53.3	48.2	52.3	52.1	W.S.W. .	1	S. & C. K. 10	Fog to south'd and west'd; clear streaks to east'd.
	Noon.	.260	56.3	50.9	48.3	50.8	50.6	Westward .	1	Rain . . .	Began about 10h. 45m.; clouds from northwest.
	3 P. M.	.282	56.5	53.3	49.3	53.3	53.0	S.W. . .	1	N. S. 10 . .	Clouds from northwest.
	6	.334	56.3	49.9	47.1	49.9	50.0	N.E. . . .	Air.	N. S. 10 . .	Clear in spots; clouds from northwest.
	9	.376	55.1	46.5	45.9	46.9	47.4	S.W. . .	Air.	Fog . . .	Stars visible.
	Midn't.	28.392	53.3	46.0	44.7	45.7	46.0	N.E. . . .	1	Foggy . .	Taken at 1 A. M. Max. temp., 54°5; min. 45°.2.

TERM-DAY

METEOROLOGICAL OBSERVATIONS

AT

SANTIAGO DE CHILE.

DECEMBER 21—22, 1849.

HOUR.	BAROMETER.	THERMOMETERS.				WIND.		CLOUDS.	REMARKS.
		Att'd.	Standard.	Wet.	Sky.	Direction.	Force.		
	Inches.	°	°	°	°				
6 A. M.	28.226	67.0	61.7	58.1	57.5	Calm . .	0	0	
7									
8									
9	.254	66.4	64.0	59.0	66.5	Westward .	1	K. & S. 2 .	
10									
11	.240	68.5	68.7	62.0	72.5	Southward .	2	C. & K. S. 3	
Noon.	.238	69.2	70.3	62.6	76.8	S.S.W. . .	3	C. & K. S. 6	
1 P. M.	.226	71.2	72.0	62.6	78.2	S.S.W. . .	2	K. & S. 4 .	
2	.216	72.5	74.0	63.0	78.0	S.S.W. . .	2	K. & S. 3 .	
3	.206	73.2	73.7	63.5	78.5	S.S.W. . .	2	K. & S. 2 .	
4	.200	74.0	74.0	63.6	78.0	S.S.W. . .	2	K. & S. 3 .	
5	.180	74.1	74.5	59.7	77.5	S.W. . .	2	K. 3 . . .	K. all round horizon.
6	.180	73.0	*76.2	61.2	74.9	S.W. . .	2	K 2 . . .	* In the open air.
7	.194	72.2	71.7	60.3		S.S.W. . .	1	K. 1 . . .	
8	.200	70.2	70.5	59.6		Southward .	1	K. 1 . . .	
9	.224	70.0	67.5	57.4		Southward .	1	K. 4 . . .	
10	.232	68.5	66.8	52.5		Eastward .	1	K. 4 . . .	
11	.236	68.0	66.2	52.2		S. easterly .	1	C. S. & K. 3	
Midnight.	.200	66.6	65.6	52.9		Southerly .	1	S. 4 . . .	Slight haze.
1 A. M.	.200	67.0	64.9	52.0		Southerly .	1	S. 7 . . .	
2	.176	65.2	62.7	50.2		Southerly .	1	S. 7 . . .	
3	.160	64.2	61.0	50.2		Westward .	1	S. 8 . . .	
4	.160	64.2	60.8	50.6		Calm . .	0	S. 9 . . .	
5	.142	64.5	61.2	50.6		Calm . .	0	C. & K. S. 8	
6	28.170	64.0	60.7	49.7		Calm . .	0	C. S. & K. S. 7	

JANUARY 21—22, 1850.

HOUR.	BAROMETER.	THERMOMETERS.				WIND.		CLOUDS.	REMARKS.
		Att'd.	Standard.	Wet.	Sky.	Direction.	Force.		
	Inches.	°	°	°	°				
6 A. M.									
7	28.086	62.6	58.3	50.2		N. westerly	1	0	Slight C. K. over Andes.
8	.126	64.5	61.0	52.2		N. westerly	1	0	Do. do. do.
9	.126	65.5	62.0	52.7	63.5	N. westerly	1	0	Do. do. do.
10	.126	67.0	64.2	54.5	68.0	Westward .	1	0	Do. do. do.
11	.130	68.0	65.7	55.4		N. westerly	1	0	Do. do. do.
Noon.	.134	69.7	68.5	56.1	74.0	Westward .	3	0	Slight C. K. around horizon.
1 P. M.	.140	71.0	69.8	56.5		W.S.W. .	2	K. 1 . . .	K. around horizon.
2	.141	72.0	71.0	55 6		W.S.W. .	2	K. 1 . . .	Do. do.
3	.122	72.8	72.3	56.3	78.8	W.S.W. .	3	K. 1 . . .	Do. do.
4	.118	73.5	73.0	56.7		W.S.W. .	3	0	Do. do.
5	.096	73.9	73.5	55.9					
6	.108	73.5	73.0	57.9	75.2	N.W. . .	3	0	K. over Andes.
7	.121	72.7	72.0	56.9		S.W. . .	2	0	Do. very slight.
8	.138	71.5	70.5	55.9		Southerly .	2	0	S. to the southeast and southwest.
9	.156	71.5	68.7	55.9		Easterly .	1	0	
10									
11	.133	68.3	66.5	53.8		Calm . .	0	0	Slight air from northeast.
Midnight.	.126	68.3	66.3	53.6		Calm . .	0	0	Do. from north.
1 A. M.	.100	67.8	63.5	50 0		Northward .	1	0	
2	.016	66.0	60.8	49.5		Northward .	1	0	
3	.038	65.5	61.0	50.0		Northward .	1	0	
4	.064	64.5	61.0	50.6		N.E. . . .	1	0	
5	.062	64.5	60.8	50.9		N.E. . . .	1	0	
6	28.071	63.0	59.5	48.6	50.8	N. eastward .	1	0	

FEBRUARY 21—22, 1850.

HOUR.	BAROMETER.	THERMOMETERS.				WIND.		CLOUDS.	REMARKS.
		Att'd.	Standard.	Wet.	Sky.	Direction.	Force.		
	Inches.	°	°	°	°				
6 A. M.	28.080	67.8	67.0	56.3	61.8	E. . . .	Air.	0	
7	.094	68.5	68.5	57.6		N.E. . . .	1	0	
8	.094	70.0	69.4	58.5		N.N.W. . .	1	0	
9	.093	71.5	71.0	59.9	77.0	W. . . .	1	0	
10	.108	72.7	73.5	61.2		N.W. . .	1	0	
11	.100	74.5	75.7	62.0		W. . . .	1	0	
Noon.	.102	77.0	78.2	63.0	82.5	W. . . .	1	0	
1 P. M.	.104	78.8	80.0	62.6		W. by S. .	1	0	
2	.084	81.0	82.4	63.3		W. by S. .	2	0	
3	.084	82.5	84.0	62.8	89.5	W. . . .	3	0	K. forming over the Andes.
4	.082	83.7	84.5	63.3		W.S.W. .	4	0	Light K. over the Andes.
5	.084	83.8	84.5	63.5		S.W. . .	3	0	Do. do. do.
6	.080	82.7	83.5	63.5	82.1	W.S.W. .	2	0	
7	.104	80.8	81 8	62.0		N.E. . .	1	S. 1 . . .	To the westward.
8	.128	79.0	78.7	61.0		N.E. . .	1	0	
9	.134	77.0	76.8	59.9		N.E. . .	1	0	
10	.136	75.7	75.8	60.3		N.E. . .	1	0	
11	.132	75.2	74.7	56.9		N. . . .	1	0	
Midnight.	.126	74.5	72.0	56.5		N.N.W. .	1	0	
1 A. M.	.120	73.7	71.3	55.4		N.N.W. .	3	0	
2	.107	73.2	70.0	54.9		N.W. . .	1	0	
3	.103	72.5	69.1	55 2		N.W. . .	1	0	
4	.104	71.5	68.8	54.5		N.W. . .	1	0	
5	.106	70.3	68.6	54.9		N.E. . .	1	0	
6	28.110	68.5	67.5	56.3	61.0	N.E. . .	Air.		

MARCH 21—22, 1850.

HOUR.	BAROMETER.	THERMOMETERS.				WIND.		CLOUDS.	REMARKS.
		Att'd.	Standard.	Wet.	Dry.	Direction.	Force.		
	Inches.	°	°	°	°				
6 A. M.	28.102	67.5	55.9	50.6		N.E. . . .	Air.	C. 9 . . .	C. very thin.
7	.098	66.3	57.6	51.3		N.E. . . .	Air.	C. 8 . . .	Do.
8	.100	66.5	65.7	55.4		N.E. . . .	1	C. 8 . . .	Smoky.
9	.096	68.2	68.0	58.1	69.5	S.W. . .	1	C. 7 . . .	Do.
10	.088	69.8	69.8	58.5	72.5	Light air .	0	C. 6 . . .	Do.
11	.088	71.5	72.0	61.0		W. . . .	1	C. 7 . . .	Do.
Noon.	.079	73.5	75.8	62.2		W. . . .	1	C. 7 . . .	Do.
1 P. M.	.080	75.3	77.2	62.8		S.W. . .	1	C. 6 . . .	Do.
2	.071	77.0	78.2	62.6		S.W. . .	2	C. 6 . . .	Do.
3	.067	78.5	79.9	61.7		S.W. . .	2	C. 6 . . .	Do.
4	.057	79.5	80.7	63.0		S.W. . .	3	C. 5 . . .	Do.
5	.068	80.5	81.2	63.9	82.2	S.W. . .	2	C. 6 . . .	Very light.
6	.082	79.7	75.6	63.0	78.7	S.W. . .	Air.	C. 5 . . .	
7	.084	77.7	72.7	61.7		S. . . .	Air.	C. 3 . . .	
8	.090	75.5	65.3	59.9		S.E. . . .	1	0	
9	.088	74.0	67.7	58.5		E. . . .	Air.	0	Light C. to westward.
10	.070	73.0	65.8	58.1		N.E. . . .	1	C. 1 . . .	
11	.060	72.5	65.3	57.6		N.E. . . .	1	C. 1 . . .	
Midn't.	.052	72.0	63.7	55.9		N.W. . .	2	0	Light C. northwest.
1 A. M.	.044	70.7	60.8	55 2		N.E. . . .	1	0	
2	.032	69.3	59.0	54.0		E. . . .	1	0	
3	.026	67.7	60.6	52.7		N.E. . . .	1	0	
4	.026	67.0	56.7	51.8		S.E. . . .	Air.	0	
5	.028	65.6	55.9	51.5		S. . . .	1	0	
6	28.044	64.7	64.2	51.8	59.0	Light air .	0	0	Smoky.

APRIL 22—23, 1850.

HOUR.	BAROMETER.	THERMOMETERS.				WIND.		CLOUDS.	REMARKS.
		Att.	Standard.	Wet.	Sky.	Direction.	Force.		
	Inches.	°	°	°	°				
6 A. M.	28.066	58.7	46.8	44.8	45.5	N.E. . . .	Air.	C. 6 . . .	
7	.088	58.0	56.8	47.4		E. . . .	Air.	C. 6 . . .	Smoky.
8	.105	57.2	57.7	48.6		E. . . .	Air.	C. 2 . . .	Do.
9	.122	58.0	54.7	51.1	54.6	S.E. . . .	1	C. 3 . . .	Do.
10	.121	58.5	56.4	52.0		S.E. . . .	1	C. & K. 7 .	Do.
11	.120	59.4	58.3	53.1		S.E. . . .	1	C.K. 8 . .	Do.
Noon.	.106	60.2	59.1	54.0	61.4	S.W. . .	2	C. K. 8 . .	Do.
1 P. M.	.096	61.1	60.0	54.7		S.W. . .	2	C. K. 9 . .	Do.
2	.092	61.6	60.7	54.7		S.W. . .	3	C. K. 9 . .	Do.
3	.093	62 0	61.0	55.2	62.7	W. . . .	2	C. K. 9 . .	
4	.098	62.1	61.0	54.5		S. . . .	3	C. K. 8 . .	
5	.092	62.4	61.3	53.8		S. by W. .	Airs.	C.K.&C.S. 8	
6	.096	62.0	58.7	53.1		S. by W. .	1	C. K. & S. 6	
7	.103	61.3	56.3	51.8		S. . . .	1	K. & C. K. 8	
8	.107	60.5	56.7	51.8		S. W'd . .	2	C. K. 7 . .	
9	.110	60.7	53.8	50.9		N. . . .	1	C. K. 8 . .	Moving from N.N.W.
10	.107	60.3	52 2	49.5		N.N.W. .	2	C. K. 9 . .	
11	.106	59.7	52.2	50.0		N.W. . .	2	C. K. 7 . .	
Midnight.	.106	59.3	50.9	49.1		N.W. . .	1	C. K. 8 . .	
1 A. M.	.098	59.0	50.0	48.4		N.W. . .	Air.	C.K.&C.S. 10	A halo around the moon.
2	.080	58.5	49.3	47.4		N. . . .	1	C. K. 9 . .	
3	.067	57.6	48.4	47.2		N.W. . .	1	K. 4 . . .	
4	.055	57.0	47.6	46.6		N.E. . . .	Air.	K. 3. . . .	
5	.056	57.0	46.6	45.5		N. . . .	Air.	K. 3 . . .	
6	28.078	57.2	54.2	47.6		N.N.E. . .	Air.	K. S. 8 . .	

NOVEMBER 21, 1850.

HOUR.	BAROMETER.	THERMOMETERS.						WIND.		CLOUDS.	REMARKS.
		Att'd.	Standard.	Wet.	Dry.	Register. Max.	Register. Min.	Direction.	Force.		
	Inches.	°	°	°	°	°	°				
6 A. M.	28.068	65.0	53.7	49.7	53.6	55.2	55.2	Northward .	1	Fog 10 . .	
7											
8											
9	.068	63.2	59.3	53.6	59.9	60.2	60.0	S.W. .	2	K. 1 . . .	Round mountains.
10											
11											
Noon.	.050	66.5	71.5	59.7	70.5	70 1	69.5	S.W. . .	2	0	K. over mountains.
1 P. M.	.047	67.5	73.8	61.0	72.9	72.7	72.2	S.W. . .	3	0	Do.
2	.044	68.8	76.0	60.8	74.5	73.9	74.6	S.W. . .	3	K. 1 . . .	Do.
3	.035	69.5	76.0	60.8	74.5	76.0	76.1	S.W. . .	3	K. 1 . . .	Do.
4	.035	70.0	74.2	59.9	73.2	74.2	73.7	S.W. . . .	3	K. 1 . . .	Do.
5	.031	70.0	72.2	60.3	71.4	73.0	72.0	S.W. . .	2	K. 1 . . .	Do.
6	.040	69 0	67.8	58.1	67.1	68.7	68.7	S.S.W. . .	3	K. 1 . . .	Do.
7	.046	66.0	63.0	55 6	62.6	64 0	63.7	S.S.W. . .	5	K. 1 . . .	Do.
8	.060	67.0	59.8	53.4	59.2	60.7	60.5	S.S.W. . .	4	0	
9	.062	67.2	58.5	52.7	58.5	59.2	59.2	S. westward	2	0	
10	.056	67.2	57.0	51.5	56.9	57.7	57.5	S. westward	1	0	
11	.056	67.0	56.3	50.6	55.9	56.6	56 0	S.W. . .	2	C.,C.S. & S.3	
Midnight.	28.038	66.8	54.9	49.7	54.5	55.2	55.0	W.S.W. . .	1	C. S. 9 . .	A lunar halo partially formed.

DECEMBER 21, 1850.

HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
		Att'd.	Standard.	Wet.	Dry.	Register. Wet.	Register. Max.	Register. Min.	Direction.	Force.		
	Inches.	°	°	°	°	°	°	°				
6 A. M.	28.164	65.6	61.3	56.3	59.9		62.6	62.5	Calm . .	0	K. S. 10 . .	
7	.168	65.5	61.0	57.9	62.6		62.4	62.2	Calm . .	0	K. S. 10 . .	
8	.151	67.0	68.4	62.2	69.8		67.7	67.3	Calm . .	0	K. 1 . . .	Over Andes.
9	.146	67.4	69.1	63.5	71.0		69.0	68.5	Calm . .	0	K. 1 . . .	Do.
10	.139	68.5	71.7	63.5	72.3		70.8	71.4	S.W. . .	1	K. 1 . . .	
11												
Noon.	.127	71.4	75.7	68.2	75.4		75.0	74.4	S.W. . .	1	K. 1 . . .	
1 P. M.	.120	78.0	78.3	66.0	78.0		77.4	76.8	S.W. . .	2	K. 1 . . .	Do.
2	.107	73.0	79.9	64.6	78.3		78.8	78.7	S.W. . .	4	K. 1 . . .	Do.
3	.102	73.2	80.2	66.4	78.8		80.0	80.4	S.W. . .	4	K. 1 . . .	Do.
4	.095	73.5	79.8	63.4	78.0		79.6	79.6	S.W. . .	4	K. 1 . . .	Do.
5	.088	73.3	78.1	61.2	77.0		78.0	77.5	S.W. . .	3	K. 1 . . .	Do.
6	.092	73.0	76.5	59.9	74.7		76.8	76.5	S.W. . .	2	K. & C. S. 2	
7	.118	72.8	72.0	59.2	70.8		72.2	72.0	S.S.W. . .	2	K. & C. S. 3	
8	.134	.6	68.	57.6	68.0		68.7	68.0	S.S.W. . .	1	K. S &. C. 3	
9	.144	70.5	66.	57.9	66.0		66.5	65.8	S.S.W. . .	1	K. S. 1 . .	
10	.137	69.3	65.	56.3	64.6		65.0	64.5	S. and E'd .	1	K. S. & C. 5	
11	.126	69.3	63.5	55.4	63.0		63.4	62.7	Southward .	Air.	K. & K. S. 1	
Midnight.	28.118	69.	62.3	54.3	61.7	53.4	62.0	61.6	Eastward .	1	K. S. 1 . .	

JULY 22—23, 1850.

HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
		Att'd.	Standard.	Wet.	Dry.	Sky.	Register. Max.	Register. Min.	Direction.	Force.		
	Inches.	°	°	°	°	°	°	°				
6 A. M.	28.372	57.2	34.1	32.6	32.8	34.6	33.0	34.6	S.S.E. . .	1	0	
7	.380	56.0	34.5	33.0	33.3	32.7	32.8	33.7	Southerly .	1	0	
8	.388	54.7	35.7	34.2	34.8	35.0	36.0	37.2	Eastward .	1	0	
9	.390	54.5	39.8	39.2	40.8	39.0	39.8	40.5	Northward .	1	0	
10	.390	55.4	43.5	41.9	43.7	41.5	43.0	43.2	Calm . .	0	0	
11	.390	56.5	47.4	44.1	44.6	44.0	46.0	46.2	N'd and W'd	Air.	0	
Noon.	.384	60.2	49.1	44.6	46.6	45.5	48.0	48.3	Calm . .	0	C. K. 1 . .	
1 P. M.	.360	61.2	51.5	45.2	48.1	48.3	50.2	50.2	Westward .	1	0	
2	.336	62.0	52.5	45.9	51.3	50.0	51.5	51.3	W.N.W. .	1	0	
3	.336	62.0	52.8	45.9	51.3	52.2	52.1	52.1	W.N.W. .	1	0	
4	.328	62.5	52.7	45.9	51.3	51.6	51.8	51.8	S.S.W. . .	1	0	
5	.314	59.1	50.4	43.7	48.1	45.4	49.9	49.6	S'd and E'd	Airs.	0	
6	.334	59.0	47.0	41.7	44.8		46.2	46.0	S'd and E'd	Airs.	0	
7	.370	63.5	43.3	39.1	41.7		43.0	43.0	N'd and E'd	1	0	
8	.360	65.2	42.5	37.6	39.1		42.0	42.0	Calm . .	0	0	
9	.336	65.2	41.5	36.8	38.4		41.5	42.0	N'd and E'd	2	0	
10	.336	64.5	41.0	36.4	38.0		39.8	41.5	Calm . .	0	0	
11	.340	65.5	39.0	34.5	36 0		37.4	38.2	Calm . .	0	0	Very slight C. to southward and eastward.
Midnight.	.344	66.2	37.6	34.1	35.2		36.4	37.2	Calm . .	0	0	
1 A. M.	.318	66.0	36.9	33.1	34.2		35.2	36.5	Calm . .	0	0	
2	.312	67.2	36.2	33.0	33.8		34.9	35.5	Northward .	1	0	
3	.307	67.0	35.1	32.3	33 5		34.0	34.6	Northward .	1	0	
4	.264	66.2	33.0	31.5	32.7		32.9	33.5	Northward .	1	0	
5	.244	64.0	32.1	30.9	32.0		32.2	33.0	Northward .	1	0	
6	28.222	62.7	32.0	30.6	32.1		32.4	33.4	Calm . .	0	C. 1 . . .	

AUGUST 21—22, 1850.

HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
		Att'd.	Standard.	Wet.	Dry.	Sky.	Register. Max.	Register. Min.	Direction.	Force.		
	Inches.	°	°	°	°	°	°	°				
6 A. M.	28.286	58.5	43.4	42.8	43.9	43.2	45.2	46.5	N.W. . .	1	C. & C. S. 2	
7	.278	58.0	44.7	42.1	43.9	44.2	46.1	46.2	N.W. . .	1	C. & C. S. 3	
8	.284	*57.5	*49.0	47.2	49.2	47.5	49.0	49.2	N.W. . .	2	C. & C. S. 4	* Office door open..
9	.292	56.5	53.5	50.4	52.7		52.7	52.9	Calm . .	0	C. & C. S. 8	Too cloudy for observing "sky" ther-
10	.292	57.5	57.5	51.3	54.7		55.5	55.5	S.S.W. . .	1	C. & C. S. 9	Smoky. [mometer.
11	.284	58.0	59.0	52.0	55.9		57.7	57.7	Calm . .	0	C. & C. S. 10	
Noon.	.268	58.2	60.0	52.7	56.7		57.8	58.0	Calm . .	0	C. & C. S. 10	
1 P. M.	.234	58.5	60.5	52.7	56.8		58.5	59.0	S.S.W. . .	1	C. & C. S. 10	
2	.228	59.0	60.5	53.1	57.0		58.7	59.2	S.S.W. . .	1	C. & C. S. 10	
3	.246	60.5	60.0	53.1	57.5		59.4	59.4	Southward .	3	C. K. 9 . .	
4	.246	61.8	59.0	52.0	55.2		58.2	58.2	W.S.W. .	4	C. K. & S. 9	
5	.271	63.0	55.5	51.5	54.3		56.0	55.5	S.S.E. . .	2	K. S. 10 . .	Lower stratum of clouds moving from
6	.282	60.5	54.0	50.0	52.2		54 0	54.2	S.S.E. . .	2	K. S. 10 . .	E.S.E.; upper from N.W. Clouds low
7	.298	61.8	52.5	49.3	51.8		53.0	53.0	S.S.W. . .	2	K. S. 10 . .	down the Andes.
8	.284	61.8	51 2	48.4	51.1		51.3	51.7	Calm . .	0	K. S. 10 . .	
9	.276	62.0	50.0	47.8	50.0		50.1	50.3	Calm . .	0	K. S. 10 . .	
10	.284	61.9	49.7	47.0	49.2		49.6	49.8	S.S.W. . .	2	K. S. 10 . .	
11	.296	61.7	49.1	46.4	48.4		49.2	49.2	S'd and W'd	3	K. S. 10 . .	
Midnight.	.312	62.5	48.6	46.1	48.2		48.9	48.7	S.E. . . .	4	K. S. 10 . .	Fog to northward and eastward.
1 A. M.	.308	63.0	48.4	46.0	48.0		48.6	48.6	Calm . .	0	K. S. 10 . .	
2	.300	64.0	48.6	46.0	47.9		48.6	48.8	S.S.E. . .	1	K. S. 10 . .	
3	.290	63.0	48.8	46.2	48.1		49 0	49.2	E.S.E. . .	2	K. S. 10 . .	Fog.
4	.290	63.0	49.0	46 9	49.2		49.8	49.9	E.S.E. . .	2	K. S. 10 . .	
5	.290	63.2	49.1	46.8	49.3		49.8	50.0	E S.E. . .	2	K. S. 10 . .	
6	28.308	61.2	47.5	45.7	46.6		48.2	48.4	Calm . .	0	K. S. 5 . .	

APRIL 21, 1851.

HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
		Att'd.	Standard.	Wet.	Dry.	Register.			Direction.	Force.		
						Wet.	Max.	Min.				
	Inches.	°	°	°	°	°	°	°				
6 A. M.	28.175	60.3	55.6	53.4	54.7		56.2	56.3	N.E. . .	1	C. K. & S. 9	Late.
7												
8	.208	60.2	57.4	55.4	57.2		57.5	57.5	N.E. . .	1	K.,C. K. & S. 9	
9	.206	60.6	60.5	57.9	60.1		60.2	60.4	N.W. . .	2	K. & K. S. 10	
10	.214	61.0	62.2	58.3	61.2		62.2	61.7	N.W. . .	1	K. & K. S. 10	
11												
Noon.	.206	61.6	64.4	59.2	63.3		64.4	64.2	Northward .	1	K. & K. S. 9	
1 P. M.	.186	62.4	66.8	60.8	65.7		66.6	66.5	S.W. . .	3	K. & C. K. 5	
2	.187	63.0	68.5	61.2	67.5		68.3	68.3	S.W. . .	3	K.,C.K.&K.S.9	
3	.201	63.6	66.4	60.3	65.3		67.5	67.0	W.S.W. .	4	K. & K. S. 8	
4	.198	63.6	64.4	59.9	63.7		65.2	64.8	S.W. . .	4	K. & K. S. 7	
5												
6	.203	62.5	60.9	57.9	60.1		62.3	61.7	S.W. . .	3	K. & K. S. 8	
7	.220	62.4	60.0	56.7	58.7		60.7	60.6	N.E. . .	1	K. & K. S. 3	
8	.226	62.5	59.3	56.5	58.3		60.2	60.2	Eastward .	1	K. & K. S. 3	
9	.223	62.4	58.2	55.9	57.6		59.0	59.0	N. eastward	1	K. S. 2 . .	
10	.222	62.5	57.8	55.4	56.7		58.7	58.5	N.E. . .	1	K. S. 10 .	
11	.224	62.5	58.2	55.9	56.9		58 8	58.8	N.E. . .	1	K. S. 10 .	Late.
Midnight.	28.228	62.5	58.0	55.9	56.9	50.7	58 9	58.7	Southward .	1	K. S. 10 .	

MAY 21, 1851.

HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
		Att'd.	Standard.	Wet.	Dry.	Register.			Direction.	Force.		
						Wet.	Max.	Min.				
	Inches.	°	°	°	°	°	°	°				
7 A. M.	28.080	52.7	44.7	42.8	43.7		45.3	46 5	Calm . .	0	0	Some C. about the horizon.
8	.080	52.5	47.6	45.7	47.6		47.2	47.8	Calm . .	0	C. & C. S. 1	
9	.082	53.3	51.3	47.4	50.4		51.3	51.4	Eastward .	1	C. & C. S. 1	Smoky.
10	.086	54.7	56.9	51.8	55.9		56.1	55.8	S. eastward	1	C. & C. S. 1	
11	.086	56.0	61.4	54.3	59.7		60.6	59.5	S.W. . .	Airs.	C. & C. S. 1	Smoky.
Noon.	·079	57.7	63.9	53.6	62.0		63.5	62.6	S.W. . .	1	C. & C. S. 2	
1 P. M.	.074	59.5	64.8	54.9	63.0		64.0	63.3	Calm . .	0	C. & C. S. 7	
2	.070	60.5	65.7	55.2	63.7		64.8	64.2	S.W. . .	1	S. & C. S. 9	
3	.068	61.3	64.0	54.7	62.4		64.0	63.4	S.W. . .	1	S. & C. S. 9	
4	.069	60.8	62.2	55.2	61.0		62.7	62.4	Calm . .	0	C.,C.S. & S. 9	
5	.074	60.5	60.4	54.0	58.5		61.3	60.3	Calm . .	0	C. & C. S. 9	
6	.066	59.3	55.9	50.9	54.0		57.5	57.7	Calm . .	0	C. & C. S. 9	
7	.066	57.8	53.0	48.8	51.8		54.8	55.2	Eastward .	Air.	C. & C. S. 3	
8	.062	57.0	51.6	47.6	50.0		53.4	53.7	Eastward .	Air.	C. & C. S. 3	
9	.052	55.7	50.5	47.0	49.1		52.0	52.4	Calm . .	0	C. & C. S. 5	
10	.060	56.0	51.0	47.6	49.7		52.2	52.8	N. eastward	1	C. & C. S. 3	
11	.054	56.0	49.0	45.9	47.6		50.5	51.0	N. eastward	Air.	C. & C. S. 6	
Midnight.	28.054	55.8	48.5	45.3	47.0	37.6	49.7	50.6	N. eastward	Air.	C. & C. S. 8	A lunar halo.

JANUARY 31, 1851.

HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
		Att'd.	Standard.	Wet.	Dry.	Register.			Direction.	Force.		
						Wet.	Max.	Min.				
	Inches.	°	°	°	°	°	°	°				
6 A. M.	28.075	66.8	64.5	59.2	63.3		66.6	66.4	Calm . .	0	0	Mist around mountains.
7	.092	67.8	65.3	60.6	63.9		65.5	65.6	Calm . .	0	0	Do.
8	.085	69.0	69.2	62.6	68 0		69.8	69.8	Calm . .	0	0	Atmosphere smoky.
9	.085	70.4	75.0	65.5	75.0		73.7	73.0	Calm . .	0	0	Do.
10	.086	71.5	76.3	66.0	76.0		75.4	75.0	Southward .	Air.		Do.
11												
Noon.	.086	73.3	82.4	65.7	82.6		80.6	80.6	S.W. . .	1	0	
1 P. M.	.080	74.7	85.1	64.6	84.0		82.8	83.2	S.W. . .	2	0	
2	.063	75.7	87.3	66.6	86.7		84.7	85.5	S.W. . .	2	0	
3	.054	76.7	88.0	66.2	87.3		85.6	86.4	S.W. . .	3	0	K. over mountains to eastward.
4	.044	77.3	88.3	66.8	87.0		86.2	86.8	S.W. . .	3	0	Do. do.
5	.040	77.8	86.3	66 2	84.2		85.0	84.7	S.W. . .	4	0	Do. do.
6	.047	77.8	83.5	65.7	81.5		82.6	82.8	S.W. . .	3	0	Do. do.
7	.055	77.2	77.3	64.1	76.0		78.3	78.6	S.W. . .	1	0	
8	.060	76.0	73.7	63.0	72.5		74.2	73.6	Southward .	1	0	Some S. and C. S. to westward.
9	.058	75.0	71.7	62.2	69.8		71.6	70.6	Calm . .	0	0	
10	.059	74.7	70.0	61.2	68.4		69.4	68.7	Calm . .	0	0	
11	.036	74.5	68.3	60.3	67.5		68.0	67.4	Calm . .	0	0	
Midnight.	28.018	74.0	67.3	59.4	65.7	55.5	66.8	66.5	Calm . .	0	0	

FEBRUARY 31, 1851.

HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
		Att'd.	Standard.	Wet.	Dry.	Register.			Direction.	Force.		
						Wet.	Max.	Min.				
	Inches.	°	°	°	°	°	°	°				
6 A. M.	28.130	66.2	58.3	53.8	57.2		57.0	57.0	Calm . .	0	0	Smoky.
7	.134	65.7	61.6	56.7	60.6		61.2	61.0	Southward .	Air.	0	Do.
8	.142	67.0	66.7	60.3	65.7		67.4	67.4	Calm . .	0	0	Do.
9	.139	68.2	71.2	62.6	70.0		70.5	70.2	Calm . .	0	0	Do.
10	.143	69.4	72.5	63.7	72.0		72.3	71.8	S. westward	1	0	Do.
11	.137	70.3	75.5	65.1	75.0		74.8	74.3	S.W. . .	1	0	Do.
Noon.	.139	71.2	77.8	65.3	76.7		77.1	76.8	S.W. . .	1	0	Do.
1 P. M.	.120	72.0	81.3	65.3	80.1		80.2	80.0	S.W. . .	2	0	Do.
2	.112	73.0	82.5	64.9	81.0		81.4	81.5	S.W. . .	3	0	Do.
3	.104	74.0	83.0	64.6	82.0		83.4	84.1	S.W. . .	3	0	Do.
4	.093	76.4	83.3	64.9	82.0		83.7	84.7	S.W. . .	3	0	Do.
5	.076	77.0	82.0	64.9	82.0		81.5	81.3	S.W. . .	4	0	Do.
6	.076	76.0	77.8	63.5	75.8		78.3	78.8	S.W. . .	4	C. 1 . . .	Do.
7	.100	75.0	73.0	61.5	71.0		72.8	72.8	S.W. . .	3	C. & C. S. 3	
8	.101	73.7	69.0	60.1	68.0		70.3	69.8	E. by S. . .	1	C. & C. S. 2	
9	.103	72.5	67.2	59.2	66.2		68.7	68.2	Calm . .	0	0	
10	·090	70.6	64.5	57.9	63.9		66.4	66.0	Calm . .	0	0	
11	.084	70.5	64.5	57.6	63.7		66.2	66.0	Calm . .	0	0	
Midnight.	28.079	70.3	63.5	57.2	62.4	51.7	65.5	65.4	Calm . .	0	0	

SEPTEMBER 23, 1851.

HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
		Att'd.	Standard.	Wet.	Dry.	Register.			Direction.	Force.		
						Wet.	Max.	Min.				
	Inches.	°	°	°	°	°	°	°				
6 A. M.	28.214	54.0	47.5	45.5	47.4		48.8	48.8	Calm . .	0	0	Taken at 6h. 30m.
7	.215	54.2	54.4	49.1	54.7		51.2	51.0	N.W. . .	1	0	
8	.232	54.7	54.8	50.9	54.7		54.0	53.7	Calm . .	0	0	
9	.229	55.5	56.5	51.3	55.9		56.3	56.0	Calm . .	0	0	
10	.222	56.3	60.5	54.0	59.4		60.5	59.8	Calm . .	0	0	
11	.206	58.0	63.8	56.1	60.8		62.2	61.2	S.S.W. . .	1	C. 1 . . .	Smoky.
Noon.	.190	59.2	67.3	57.9	66.4		65.2	64.5	S.S.W. . .	1	C. 1 . . .	Do.
1 P. M.	.164	60.4	70.3	60.1	69.1		68.4	67.5	S.W. . .	2	C. 2 . . .	
2	.152	61.8	72.3	59.9	70.0		70.7	69.7	S.W. . .	1	C. 4 . . .	
3	.139	62.5	73.0	60.3	70.5		72.0	71.0	Southward.	1	C. & C. K. 5	
4	.136	63.2	73.3	60.3	72.3		72.6	71.6	W.S.W. .	1	C, C.K. & C.S. 5	
5	.134	63.5	72.4	59.7	71.2		71.7	70.6	S.W. by W.	2	C., C.K. & C.S. 4	
6	.160	62.8	65.1	58.1	63.7		66.2	65.7	S.S.W. . .	1	C. & C. K. 6	
7	.153	62.4	63.5	57.4	62.6		64.7	64.3	Calm . .	0	C. & C. S. 3	
8	.155	62.3	62.0	56 5	61.2		63.3	62.8	N.W. . .	1	C. & C. S. 2	
9												
10	.156	60.3	58.4	53.4	57 2		59 6	59.5	Calm . .	0	C. 1 . . .	
11	.156	61.0	56.9	52.9	55.9		58.6	58.4	Calm . .	0	C. 1 . . .	
Midnight.	28.147	60.0	55.4	51.5	54.0	43.8	56.8	56.7	Calm . .	0	C. 1 . . .	

OCTOBER 21, 1851.

HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
		Att'd.	Standard.	Wet.	Dry.	Register.			Direction.	Force.		
						Wet.	Max.	Min.				
	Inches.	°	°	°	°	°	°	°				
7 A. M.	28.287	54.3	55.1	50.2	55.9		58.7	53.6	N.E. . . .	1	S. & K. S. 2	
8	.295	55.5	56.8	51.5	56.5		55.8	55.5	N.E. . . .	1	K. 2 . . .	
9	.303	56.5	58.8	52 0	57.6		58.3	57.8	N.W. . .	2	K. 4 . . .	
10	.309	57.1	62.0	53.8	61.2		61.6	60.9	W. . . .	2	K. 5 . . .	
11												
Noon.	.294	60.0	66.5	55.2	66.0		66.2	65.7	S.E. . . .	1	0 . . .	K. around the horizon.
1 P. M.	.281	61.0	67.0	55.4	66.2		67.2	66.0	S.W. . .	1	0	Do.
2	.273	61.2	68.1	56.3	66.8		68.0	67.2	S.W. . .	2	K. 1 . . .	Do.
3	.266	61.8	69.5	57.4	68.7		69.3	68.6	W. . . .	2	K. 1 . . .	
4	.276	63.4	68.4	56.1	67.5		68.7	68.1	S.W. . .	2	K. 1 . . .	
5	.272	63.0	65.7	56.3	64.4		66.7	66.0	S.W. by W.	3	K. 2 . . .	Around the horizon.
6	.285	62.4	62.5	55.6	62.0		64.2	63.6	S.W. by W.	2	0	K. over the Andes.
7	.294	61.6	58.4	53.8	57.9		60.3	60.3	S.W. . .	1	0	Do.
8	.308	61.0	56.5	52.5	55.4		58.0	58.0	Calm . .	0	0	
9	.299	60.7	55.6	52.0	54 9		56.8	57.3	Calm . .	0	0	
10												
11												
Midnight.	28.948	59.0	51.0	48.6	50.4	42.2	52.7	53.2	Calm . .	0	0	

JULY 21, 1851.

HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
		Att'd.	Standard.	Wet.	Dry.	Register.			Direction.	Force.		
						Wet.	Max.	Min.				
	Inches.	°	°	°	°	°	°	°				
7 A. M.	28.077	52.8	47.4	45.7	47.0		47.5	48.3	N.W. . .	4	C. K. 4 . .	
8	.086	52.9	47.5	45.9	46.8		47.6	48.2	S.W. . . .	2	S. & K. S. 10	
9	.110	53.3	50.7	48.1	49.7		50.0	50.3	Northward .	Air.	K. S. 9 . .	
10	.113	53.4	51.6	48.6	50.2		51.3	51.6	N.W. . .	2	K. S. 10 . .	
11	.198	53.6	53.2	50.4	52.0		53.2	53.0	W.S.W. .	2	C. & K. S. 10	
Noon.	.131	54.7	55.7	51.8	54.3		55.8	55.6	S.W. . .	1	K. & C. K. 10	
1 P. M.	.126	56.0	56.3	51.8	54.3		56.1	55.9	W. . . .	1	K. S. 10 .	
2	.116	56.3	56.0	51.5	54.3		55.6	55.5	W.S.W. .	1	S. & K. S. 10	
3	.112	56.3	56.0	51.5	54.9		55.8	55.7	Calm . .	0	S. & K. S. 10	
4	.122	56.3	54.3	50.9	53.4		54.7	54.7	W. . . .	2	S. & K. S. 10	
5												
6	.112	55.4	52.0	49.5	51.3		52.5	52.7	W. . . .	1	S. 10 . .	Clear to westward.
7	.103	55.6	51.2	49.1	50.4		51.6	52.2	Calm . .	0	S. 10 . .	
8	.104	55.5	49.4	47.6	49.1		50.4	50.6	Southward .	1	S. 10 . .	
9	.115	54.8	48.8	47.4	48 4		49.3	50.2	Calm . .	0	S. 10 . .	
10	.115	54.4	48.5	47.0	48.1		49.0	49.8	S.W. . .	2	K. S. 9 . .	
11	.095	54.7	48.1	46.6	47.4		48.4	49.4	N.E. . . .	1	S. 10 . . .	
Midnight.	28.109	55.7	47.8	46.4	47.0	44.6	48.0	49.0	N.E. . . .	1	S. 10 . . .	

AUGUST 21, 1851.

HOUR.	BAROMETER.	THERMOMETERS.							WIND.		CLOUDS.	REMARKS.
		Att'd.	Standard.	Wet.	Dry.	Register.			Direction.	Force.		
						Wet.	Max.	Min.				
	Inches.	°	°	°	°	°	°	°				
7 A. M.	28.198	55.0	50.4	46.4	50.0		51.0	51.3	Calm . .	0	C. & C. S. 1	
8	.211	55.5	53.9	50.6	54.3		54.0	54.1	N.W. . .	1	C. & C. S. 2	
9	.218	56.6	57.8	53.8	57.4		57.7	57.4	N.W. . .	1	C. & C. S. 5	
10	.231	58.8	62.3	55.6	61.7		61.6	62.2	W. . . .	1	C. & C. S. 8	
11	.230	60.3	66.0	58.3	64.9		65.5	64.6	N.W. . .	1	C. & C. S. 7	
Noon.	.232	62.3	68.7	59.4	67.5		68.8	67.8	W.N.W. .	1	C. & C. S. 4	
1 P. M.	.230	64.2	71.8	59.7	70.0		71.5	70.4	W.N.W. .	1	C. & C. S. 6	
2	.238	64.8	72.1	58.7	70.0		70.8	69.7	W.N.W. .	1	C. & C. S. 5	
3	.250	65.5	73.0	60.1	71.0		71.8	71.0	W. . . .	2	C. & C. S. 10	
4	.250	65.8	71.7	58.5	69.5		70.8	70.2	W. . . .	1	C. & C. S. 10	
5	.256	65.5	70 5	57.6	71.4		70.2	69.0	W.S.W. .	1	C. & K. S. 10	
6	.258	64.5	65.2	56.7	63.7		66.3	66.0	S.W. . .	Air.	S., C. S. & K. S. 9	
7	.270	63.4	61.3	55.2	59.9		63.0	62.8	N.E. . . .	Air.	C. S. 3 .	
8	.272	62.6	58.5	53.4	57.6		60.5	60.5	N.E. . . .	Air.	C. S. 3 . .	
9	.272	62.0	57.8	53.1	57.2		59.5	59 6	N E. . . .	1	C. S. 4 . .	
10	.270	61.8	57.0	52.7	56.0		58 6	58 7	N.E. . . .	1	C. S. 1 . .	
11	.270	61.6	54.8	50.2	53.1		56.6	57.0	Calm . .	0	0	
Midnight.	28.267	61.5	53.0	49.5	52.2	44.5	55.2	55.5	N.E. . . .	1	0	

FEBRUARY 21, 1852.

HOUR.	BAROMETER.	THERMOMETERS.						WIND.		CLOUDS.	REMARKS.
		Att'd.	Standard.	Dry.	Register. Wet.	Register. Max.	Register. Min.	Direction.	Force.		
	Inches.	°	°	°	°	°	°				
6 A. M.	28.091	69.2	57.5	57.1	50.8	56.5	56.4	N.E. . .	Air.	0	Smoky.
7	.091	69.8	61.0	60.3	53.8	60 5	60.3	N.E. . .	1	0	Do.
8	.098	65.5	70.0	69.5	59.8	67.8	67.2	N.E. . .	Air.	0	Do.
9	.102	67.0	73.5	72.7	61.2	70.8	70.2	E.S.E. . .	1	0	Do.; C. to southward and westward.
10	.104	68.4	75.0	74.0	62.6	73.2	72.8	S.S.E. . .	1	0	Very smoky.
11	.108	70.4	78.6	77.4	64.0	76.2	76.0	S.W. . .	2	0	Do.
Noon.	.107	72.3	81.5	80.1	64.3	79.1	79.1	S.W. . .	3	0	Do.
1 P. M.	.101	74.6	84.5	82.8	64.7	82.0	82.1	S.W. . .	3	0	Do.
2	.068	76.6	86.2	84.8	64.2	83.2	83.2	S.W. . .	3	0	Do.
3	.080	78.3	87.3	85.5	64.4	85.2	85.7	S.W. . .	3	0	Do.
4	.065	78.8	86.5	85.0	64.2	84.7	85.2	S.W. . .	2	0	Do.; S. and C. S to southwest.
5	.057	79.2	84.6	83.5	64.3	84.0	84.3	S.W. . .	3	S. & C. S. 1	Do. do.
6	.056	78.3	81.3	80.0	63.6	81.2	81.7	S.W. . .	1	C. & C. S. 3	Smoky.
7	.056	76.7	75.5	73 8	60.8	76.7	76.7	Southward .	1	C. & C. S. 4	Do.
8	.066	74.6	71.4	70.8	61.0	73.0	73.0	Eastward .	1	C. S. 3? . .	
9	.068	73.3	69.3	68.7	60.2	71.2	71.0	Calm . .	0	C. 3? . .	
10	.066	72.7	68.2	67.5	59.0	70.1	69.8	N.E. . .	Air.	C. 3 . . .	
11	.060	71.9	66.7	66.0	58.5	68.7	68.7	N.E. . .	1	C. 3. . . .	
Midnight.	28.052	71.1	64.9	63.5	56.2	67.2	67.2	Calm .	0	0	C. about the horizon.

MARCH 23, 1852.

HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
		Att'd.	Standard.	Register. Wet.	Register. Max.	Register. Min.	Direction.	Force.		
	Inches.	°	°	°	°	°				
6 A. M.	28.191	60.6	55.3	50.6	54.7	54.7	N.E. . .	Air.	C. & C. S. 5	Late.
7	.205	60.6	59.0	53.6	58.4	58.4	N.E. . .	Air.	C. & C. S. 4	
8	.216	62.0	64.1	56.7	63.3	63.1	N.E. . .	Air.	C. & C. S. 2	Smoky.
9	.211	63.5	67.2	58.8	65.8	65.5	W. . . .	Air.	C. 2 . . .	Do.
10	.213	65.2	70.2	59.7	69.7	69.4	Southward .	1	C. 4 . . .	Do. very. C. very light.
11	.211	67.0	73.1	61.5	72.1	71.7	W.S.W. .	2	C. 5 . . .	Do. do.
Noon.	.207	68.5	76.0	62.7	75.1	74.8	W.S.W. .	2	C. 1 . . .	Do.
1 P. M.	.195	70.5	78.3	62.7	77.6	77.4	S.W. . .	2	0	Do. C. and S. to southward and westward.
2	.182	72.1	80.3	63.4	79.7	79.6	S.W. . .	3	0	Do. do. do.
3	.178	73.3	80.6	63.6	79.7	79.6	S.W. . .	2 & 3	0	Do. C. and S. to southward.
4	.178	74.0	80.0	63.2	79.7	79.6	S.W. . .	3	0	Do. do.
5	.182	73.8	78.6	62.4	78.7	78.5	S.W. . .	2	C. & C. K. 1	Do.
6	.182	73.0	74.3	61.2	75.2	75.0	S.S.E. . .	1	C. 2 . . .	
7	.183	71.7	69.2	59.0	70.6	70.3	W.S.W. . .	3	0	C. about the horizon.
8	.188	70.0	66.7	57.7	67.8	67.7	W.S.W. . .	2	0	
9	.182	68.7	64.5	56.7	65.3	65.4	W.N.W. .	2	0	Late.
10	.183	68.2	63.7	55.3	64.8	65.0	N.N.W. .	2	0	
11	.172	66.6	62.2	54.7	63.5	63.5	N.N.W. .	2	0	
Midnight	28.172	66.4	61.8	55.0	63.0	62.9	Northward .	Air.	0	

NOVEMBER 21, 1851.

HOUR.	BAROMETER.	THERMOMETERS.						WIND.		CLOUDS.	REMARKS.
		Att'd	Standard.	Dry.	Register.			Direction.	Force.		
					Wet.	Max.	Min.				
	Inches.	°	°	°	°	°	°				
6 A. M.	28.166	59.7	57.7	56.1	50.8	58.0	57.6	S.W. . .	3	S. & K. S. 9	Clear to westward.
7	.175	60.2	54.5	52.9	49.5	55.1	55.0	S.W. . .	2	S.,K.S.&C.K.9	Position of instruments changed.
8	.185	61.0	55.6	54.3	50.7	57.0	56.2	S.S.E. . .	2	K. S. & K. 10	Clear in spots.
9	.190	61.9	61.0	59.2	53.4	61.0	60.0	Calm . .	0	S. & K. S. 10	Clear to westward.
10	.186	62.7	63.2	61.5	53.5	64.0	62.8	S.W. . .	1	S.,C.S.&C.6	
11	.187	64.0	64.7	64.4	55.3	65.0	64.0	Southward .	3	C. S. 4 . .	
Noon.	.179	64.8	67.5	66.6	56.4	68.0	67.0	S.W. . .	2	C. & C. K. 4	
1 P. M.	.168	65.6	69.8	68.9	57.5	70.1	69.2	S.W. . .	3	C.,C.S.&C.K.6	
2	.158	66.0	71.3	70.5	57.4	71.8	71.0	W. . . .	3	C.,C.K.&S.7	
3	.147	68.0	73.0	71.8	58.4	73.2	72.3	S.W. . .	2	K. & C. K. 7	
4	.140	68.3	71.9	70.5	58.4	72.5	71.6	S.W. . .	3	K.,C.K.,&S.4	
5	.133	68.6	70.7		58.3	71.3	70.3	W.S.W. .	3	K. & C. K. 4	K. over both cordilleras.
6	.136	68.3	68.7	67.1	57.4	69.2	68.7	W.S.W. .	2	K. & C. K. 4	
7	.148	67.0	69.1	61.2	55.7	64.0	63.7	S.S.W. . .	3	K.,C.K.,&S.2	About the horizon.
8	.166	65.0	58.4	58.1	54.0	60.3	60.2	S.S.W. . .	3	K. & K. S. 2	Do.
9	.171	64.3	57.3	56.7	53.6	59.7	59.3	Eastward .	1	K. S. 1 . .	Do.
10	.169	63.8	56.7	56.3	53.5	58.8	58.8	S.E. . . .	1	S. & K. S. 1	Do.
11	.166	64.0	55.3	54.7	52.7	57.3	57.5	Southward .	1	S. 3 . . .	
Midnight.	28.148	63.3	55.0	54.9	52.8	56.8	57.0	Calm . .	0	S. 9 . . .	

JANUARY 21, 1852.

HOUR.	BAROMETER.	THERMOMETERS.						WIND.		CLOUDS.	REMARKS.
		Att'd.	Standard.	Dry.	Registers.			Direction.	Force.		
					Wet.	Max.	Min.				
	Inches.	°	°	°	°	°	°				
7 A. M.	28.123	66.2	65.0	63.9	58.8	65.0	65.0	S.W. . .	1	0	Smoky.
8	.124	66.8	67.4	67.7	60.5	69.0	68.2	S.W. . .	1	0	Do.
9	.126	67.8	70.8	70.2	62.6	70.8	70.0	S.W. . .	1	0	Do.
10	.132	69.5	73.6	72.7	64.0	73.3	72.7	S.W. . .	2	0	Do.; K. over Andes.
11	.139	71.0	75.7	74.7	65.0	75.3	74.7	S. westward	4	K. 1 . . .	Over cordilleras.
Noon.	.136	73.0	80.0	79.0	66.6	78.7	78.3	S.W. . .	2 & 3	K.,C.K.& C.2	K. heavy over Andes.
1 P. M.	.131	74.5	81.3	79.7	66.4	79.5	79.2	S.W. . .	4	K. & K. S. 2	Do.
2	.131	75.7	82.4	80.7	66.8	81.5	81.5	S.W. . .	3	K.,KS.&CS.3	Do.
3	.125	76.8	83.3	82.1	67.5	82.4	82.6	S.W. . .	3	S.,K.S.&CS.7	Do.
4	.119	76.7	80.3	79.3	66.2	80.3	80.3	S.W. . .	3	S. & K. S. 8	Do.
5	.112	76.5	80.1	78.8	69.8	80.1	79.9	W.S.W. .	2	K. S. & C. 6	
6	.112	75.6	76.5	74.7	63.7	77.3	77.4	S.W. . .	2	S.,K.S. & C. 5	
7	.117	73.4	69.9	68.9	61.0	71.2	71.3	S.W. . .	2	S., K.S. & C. 4	
8	.117	72.2	67.5	66.6	60.5	69.3	69.4	W. . . .	Air.	C. S. 2 . .	
9	.107	70.9	65.0	64.4	59.0	67.2	67.5	W.N.W. .	1	0	S. to westward.
10	.110	69.4	62.3	63.0	59.0	66.0	66.2	E.S.E. . .	1	0	S. to west.
11	.113	68.7	60.4	64.4	57.8	63.8	64.2	W.N.W. .	2	0	Do.
Midnight.	.118	67.5	58.0	58.7	57.5	62.0	63.4	W.N.W. .	2	0	
1 A. M.	28.100	65.4	60.8	59.2	55.8	59.1	59.0	W. . . .	1	0	Haze.

FEBRUARY 21, 1852.

HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Standard.	Dry.	Register. Wet.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
	Inches.	°	°	°	°	°	°				
6 A. M.	28.091	69.2	57.5	57.1	50.8	56.5	56.4	N.E. . .	Air.	0	Smoky.
7	.091	62.8	61.0	60.3	53.8	60 5	60.3	N.E. . .	1	0	Do.
8	.098	65.5	70.0	69.5	59.8	67.8	67.2	N.E. . .	Air.	0	Do.
9	.102	67.0	73.5	72.7	61.2	70.8	70.2	E.S.E. . .	1	0	Do.; C. to southward and westward.
10	.104	68.4	75.0	74.0	62.6	73.2	72.8	S.S.E. . .	1	0	Very smoky.
11	.108	70.4	78.6	77.4	64.0	76.2	76.0	S.W. . .	2	0	Do.
Noon.	.107	72.3	81.5	80.1	64.3	79.1	79.1	S.W. . .	3	0	Do.
1 P. M.	.101	74.6	84.5	82.8	64.7	82.0	82.1	S.W. . .	3	0	Do.
2	.068	76.6	86.2	84.8	64.2	83.2	83.2	S.W. . .	3	0	Do.
3	.080	78.3	87.3	85.5	64.4	85.2	85.7	S.W. . .	3	0	Do.
4	.065	78.8	86.5	85.0	64.2	84.7	85.2	S.W. . .	2	0	Do.; S. and C. S to southwest.
5	.057	79.2	84.6	83.5	64.3	84.0	84.3	S.W. . .	3	S. & C. S. 1	Do. do.
6	.056	78.3	81.3	80.0	63.6	81.2	81.7	S.W. . .	1	C. & C. S. 3	Smoky.
7	.056	76.7	75.5	73 8	60.8	76.7	76.7	Southward .	1	C. & C. S. 4	Do.
8	.066	74.6	71.4	70.8	61.0	73.0	73.0	Eastward .	1	C. S. 3? . .	
9	.068	73.3	69.3	68.7	60.2	71.2	71.0	Calm . .	0	C. 3? . .	
10	.066	72.7	68.2	67.5	59.0	70.1	69.8	N.E. . .	Air.	C. 3 . . .	
11	.060	71.9	66.7	66.0	58.5	68.7	68.7	N.E. . .	1	C. 3. . . .	
Midnight.	28.052	71.1	64.9	63.5	56.2	67.2	67.2	Calm .	0	0	C. about the horizon.

MARCH 22, 1852.

HOUR.	BAROMETER.	THERMOMETERS. Att'd.	Standard.	Register. Wet.	Max.	Min.	WIND. Direction.	Force.	CLOUDS.	REMARKS.
	Inches.	°	°	°	°	°				
6 A. M.	28.191	60.6	55.3	50.6	54.7	54.7	N.E. . . .	Air.	C. & C. S. 5	Late.
7	.205	60.6	59.0	53.6	58.4	58.4	N.E. . . .	Air.	C. & C. S. 4	
8	.216	62.0	64.1	56.7	63.3	63.1	N.E. . . .	Air.	C. & C. S. 2	Smoky.
9	.211	63.5	67.2	58.8	65.8	65.5	W. . . .	Air.	C. 2 . . .	Do.
10	.213	65.2	70.2	59.7	69.7	69.4	Southward .	1	C. 4 . . .	Do. very. C. very light.
11	.211	67.0	73.1	61.5	72.1	71.7	W.S.W. .	2	C. 5 . . .	Do. do.
Noon.	.207	68.5	76.0	62.7	75.1	74.8	W.S.W. .	2	C. 1 . . .	Do.
1 P. M.	.195	70.5	78.3	62.7	77.6	77.4	S.W. . .	2	0	Do. C. and S. to southward and westward.
2	.182	72.1	80.3	63.4	79.7	79.6	S.W. . .	3	0	Do. do. do.
3	.178	73.3	80.6	63.6	79.7	79.6	S.W. . .	2 & 3	0	Do. C. and S. to southward.
4	.178	74.0	80.0	63.2	79.7	79.6	S.W. . .	3	0	Do. do.
5	.182	73.8	78.6	62.4	78.7	78.5	S.W. . .	2	C. & C. K. 1	Do.
6	.182	73.0	74.3	61.2	75.2	75.0	S.S.E. . .	1	C. 2 . . .	
7	.183	71.7	69.2	59.0	70.6	70.3	W.S.W. . .	3	0	C. about the horizon.
8	.188	70.0	66.7	57.7	67.8	67.7	W.S.W. . .	2	0	
9	.182	68.7	64.5	56.7	65.3	65.4	W.N.W. .	2	0	Late.
10	.183	68.2	63.7	55.3	64.8	65.0	N.N.W. .	2	0	
11	.172	66.6	62.2	54.7	63.5	63.5	N.N.W. .	2	0	
Midnight	28.172	66.4	61.8	55.0	63.0	62.9	Northward .	Air.	0	

APRIL 21, 1852.

HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
		Att'd.	Standard.	Register. Wet.	Register. Max.	Register. Min.	Direction.	Force.		
	Inches.	°	°	°	°	°				
6 A. M.	28.254	56.7	50.0	48.0	51.1	51.7	N.E. . . .	Air.	C. S. 1 . .	Around the horizon.
7	.260	56.0	50.3	48.6	51.5	52.0	S.E. . . .	Air.	0	C. around the horizon.
8	.269	55.8	53.4	50.2	53.3	53.4	S.E. . . .	Air.	0	Do.; smoky.
9	.273	57.0	57.8	53.0	57.8	57.7	Eastward .	1	0	K. S. to southwestward; smoky.
10	.275	58.0	60.3	54.3	60.3	60.0	Eastward .	1	0	Do. do.
11	.276	60.0	62.8	55.5	63.5	63.0	S. eastward.	1	0	C. S. to the southward. do.
Noon.	.271	60.3	63.8	55.7	65.3	64.8	S.W. . .	2 & 3	C. & C. S. 2	C. S. to southward and to eastward; smoky.
1 P. M.	.249	61.4	66.4	56.6	66.8	66.2	S.W. . .	1	C. & C. S. 4	C. very light; smoky.
2	.236	62.7	67.7	57.0	67.7	66.7	S.W. . .	3	C. & C. S. 2	Do. do.
3	.229	63.4	68.7	57.5	68.1	67.4	S.W. . .	2	C. & C. S. 4	Do. do.
4	.221	63.8	68.1	57.0	67.9	67.3	S.W. . .	1	C. & C. S. 3	Do. do.
5	.216	63.7	65.7	56.3	66.2	65.7	S.W. . .	1	C.,C.S. & S.3	Do. do.
6	.216	61.2	61.8	54.2	63.0	63.0	S.W. . .	Air.	C.S.,C. & S.5	
7	.204	63.0	59.5	53.4	61.0	60.7	N.E. . . .	Air.	C. 3 . . .	
8	.198	61.7	57.8	52.6	59.8	59.8	Northward .	1	C. S. 2 . .	
9	.181	61.0	56.2	51.8	57.8	57.8	N.E. . . .	Air.	S. & C. S. 6	
10	.175	60.1	54.8	51.7	56.2	56.7	N.E. . . .	Air.	C.,C.S. & S.4	
11	.156	59.3	54.0	51.1	55.6	55.8	N.W. . .	Air.	C. S. 6 . .	
Midnight.	28.148	59.3	54.2	50.7	55.6	55.8	Northward .	Air.	C. S. 7 . .	

MAY 21, 1852.

HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
		Att'd.	Standard.	Register. Wet.	Register. Max.	Register. Min.	Direction.	Force.		
	Inches.	°	°	°	°	°				
7 A. M.	28.033	57.7	49.9	47.5	50.2	50.2	Calm . .	0	S. 10 . .	From northwestward; very heavy over mountains.
8	.065	57.3	51.5	47.6	51.3	50.9	Calm . .	0	S. & N. S. 10	Do. do.; rain to westward?
9	.104	57.3	52.0	49.6	52.3	52.0	S.E. . . .	1	S. & N. S. 10	Upper stratum from northwest, lower from southeast.
10	.123	57.6	51.4	49.7	52.0	51.5	S.E. . . .	2	Rain . . .	Rain began at 9h. 30m.; clouds from northwest.
11	.127	57.6	50.7	49.5	51.5	51.0	E. . . .	1	Rain . . .	Hard; clouds from northwest.
Noon.	.155	60.1	50.8	49.0	51.4	50.7	N.E. . . .	1	Rain . . .	Do. do.
1 P. M.	.152	61.9	51.7	49.2	52.1	51.4	N.W. . .	2	Rain . . .	Do. do.
2	.144	63.0	53.0	50.0	53.0	52.2	N.W. . .	1	Rain . . .	Moderating; do.
3	.154	64.0	52.6	50.0	53.0	52.3	N.W. . .	Air	Rain . . .	Light; do.
4	.154	64.3	51.7	49.5	53.2	51.7	N. westward	Air.	Rain . . .	Moderate; do.
5	.146	63.4	51.1	48.8	51.7	51.2	Northward .	Air.	Rain . . .	Do. do.
6	.145	61.4	49.8	47.8	50.3	50.0	E. . . .	Air.	Rain . . .	Do.
7	.145	62.6	48.8	47.2	49.5	49.0	N.E. . . .	1	Rain . . .	Few drops.
8	.143	62.0	48.9	47.0	49.3	49.0	N.E. . . .	1	Rain . . .	Moderate.
9	.131	62.0	48.5	46.7	49.0	48.7	N.E. . . .	1	Rain . . .	Do.
10	.130	62.7	49.2	47.3	49.6	49.3	N.N.E. . .	2	Rain . . .	Hard.
11	.126	62.7	50.3	48.0	50.2	50.0	N.E. . . .	1	Rain . . .	Do.
Midnight.	28.103	61.7	50.0	48.3	50.2	50.0	N.E. . . .	1	Rain . . .	Do.

JUNE 21, 1853.

HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
		Att'd	Standard.	Register. Wet.	Max.	Min.	Direction.	Force.		
	Inches.	°	°	°	°	°				
7 A. M.	28.227	54.0	47.0	43.8	46.7	46.5	Eastward .	Air.	S. & K. S. 10	From northwest.
8	.221	54.1	47.9	44.6	47.4	47.3	Eastward .	Air.	S. & K. S. 10	Do.
9	.245	56.0	47.5	44.3	47.3	47.1	Eastward .	Air.	S. & K. S. 10	Do.
10	.233	56.6	51.3	45.8	50.1	49.7	Westward .	Air.	S. & K. S. 10	Do.
11	.230	56.1	51.6	46.7	50.7	50.1	Southward	Air.	S. & K. S. 10	Do.
Noon.	.230	55.1	52.2	47.7	51.3	50.5	Southward .	Air.	S. & K. S. 10	Do.
1 P. M.	.251	57.7	52.7	47.3	51.8	51.3	Calm . .	0	S. & K. S. 10	Do.
2	.256	59.7	52.5	47.0	52.1	51.3	Calm . .	0	S. & K. S. 10	Do.
3	.260	60.6	52.2	46.7	51.8	51.2	S.E. . . .	1	S. & K. S. 10	Do.
4	.260	60.6	52.4	46.8	51.8	51.3	Calm . .	0	S. & K. S. 10	Do.
5	.267	59.9	51.5	47.0	51.3	50.7	N.W. . .	1	S. & K. S. 10	Do. Clear spots to westward
6	.273	59.2	50.3	46.6	50.4	49.8	N.W. . .	1	S. & K. S. 10	Clear spots to westward.
7	.296	58.2	49.8	46.5	49.7	49.5	E.S.E. . .	1	S. & K. S. 10	Do.
8	.291	57.4	48.6	45.7	48.5	48.3	N.E. . . .	2	S. & C. S. 3	To eastward.
9	.285	56.6	47.2	44.2	47.2	47.2	N.E. . . .	Air.	S. & C. S. 1	Around the horizon.
10	.310	59.7	46.3	44.4	46.3	46.4	N.E. . . .	Air.	0 . . .	Do.
11										
Midnight.	28.306	60.2	44.0	42.3	44.3	44.4	Calm . .	0	0	

JULY 21, 1853.

HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
		Att'd.	Standard.	Register. Wet.	Max.	Min.	Direction.	Force.		
	Inches.	°	°	°	°	°				
7 A. M.	28.136	52.3	43.0	40.7	42.6	43.4	N.W. . .	1	Rain . . .	Clouds from northwest.
8	.173	53.9	42.7	40.3	42.1	43.2	N.W. . .	3	Rain . . .	Clouds from northwest; gusty.
9	.204	55.0	41.8	39.3	41.1	42.3	N.W. . .	1	Rain . . .	Clouds.
10	.253	56.0	43.4	40.3	42.4	43.4	N.N.W . .	3 &	Rain . . .	Clouds; gusty.
11	.267	54.8	43.6	39.7	42.1	43.2	N.W. . .	1	Rain . . .	Light; clouds from northwest.
Noon.	.267	53.7	43.0	39.7	41.9	43.0	N.W. .	1	Rain . . .	Light; clouds from northwest. Squally.
1 P. M.	.294	56.5	42.0	39.2	41.1	42.3	N.W. . .	2	Rain . . .	Moderate; clouds from northwest.
2	.321	58.7	42.1	39.2	41.2	42.4	N.W. . .	2	Rain . . .	Few drops; clouds from northwest.
3	.352	58.7	41.2	38.5	40.2	41.6	N.W. . .	1	Rain . . .	Light; clouds from northwest; breaking away to S. W'd.
4	.376	59.2	42.3	39.5	41.8	42.7	S.E. . . .	Air.	N. S. & K. S 9	Clouds breaking away to southwestward.
5	.376	56.2	39.4	37.2	39.3	40.5	N.E. . . .	1	K.S. & N. S. 6	
6	.402	55.5	38.3	37.2	38.6	40.3	N.E. . . .	1	K., K.S.& C. 1	Heavy about the horizon.
7	.426	55.1	35.8	34.4	36.2	37.7	N.E. . . .	1	0	K. and K. S. about the horizon.
8	.440	55.7	35.0	34.0	35.3	36.8	N.E. . . .	1	0	Few K. S. about the horizon.
9	.439	54.6	34.5	34.5	35.1	37.1	N.E. . . .	1	0	C. S. about the horizon.
10	.450	55.7	33.8	32.9	34.1	36.0	S.W. . .	Air.	0	C. S.
11	.448	53.1	33.3	32.9	33.8	35.8	N.E. . . .	1	0	S. and C. S. to northeastward.
Midnight.	28.441	52.0	32.9	32.7	33.6	35.6	N.E. . . .	Air.	S. & C. S. 1	To northeastward.

Between 1A. and 2A. A. M., there was an earthquake, which is said to have been severe. At the Angostura (to the southward) it was felt by Lieutenant Gillies quite severe, and accompanied by a long-continued noise.

AUGUST 21, 1852.

HOUR.	BAROMETER.	THERMOMETERS.					WIND.		CLOUDS.	REMARKS.
		Att'd.	Standard.	Register.			Direction.	Force.		
				Wet.	Max.	Min.				
	Inches.	°	°	°	°	°				
7 A. M.	28.412	54.0	40.8	39.1	40.6	41.6	S.E. . . .	Air.	N. S. & S. 10	From northwest; breaking to westward.
8	.437	55.0	42.0	40.4	41.7	42.6	Calm . .	0	S. & N. S. 10	Do. do.
9	.442	54.2	45.0	41.8	44.2	44.7	Southward .	Air.	S. & K. S. 10	Do. do.
10	.440	53.6	49.1	44.0	48.5	48.5	Calm . .	0	S. & K. S. 10	From southeastward; breaking over head.
11	.437	53.7	46.5	43.9	46.2	46.6	Calm . .	0	K. S. 9 . .	Do. do.
Noon.	.438	55.0	47.7	43.5	47.2	47.4	S.W. . .	Air.	K. S. 10 . .	Do. do.
1 P. M.	.415	55.0	48.5	43.8	47.8	48.2	S.W. . .	Air.	K. & K.S. 10	Do. do.
2	.414	55.6	52.1	46.7	51.7	51.5	S.W. . .	Air.	K. & K. S. 8	Do. do.
3	.412	56.9	48.7	43.5	49.2	49.2	S.W. . .	Air.	K. 2 . . .	Mostly about mountains; lower stratum from southeast-
4	.402	57.0	50.0	44.5	50.5	50.3	S.E. . . .	Air.	0 . . .	K. heavy about Andes. [ward; upper from westw'd.
5	.402	56.3	48.5	42.6	48.7	48.7	Calm . .	0	0	K. to eastward.
6	.399	54.8	46.1	42.6	46.3	47.3	Calm . .	0	0	Few to eastward.
7	.406	54.8	43.0	40.7	43.6	44.7	Southward .	Air.	0	
8	.406	54.1	41.7	39.3	42.0	43.3	N.E. . . .	1	0	
9	.399	52.6	40.8	38.5	40 7	42.3	Eastward .	Air.	0	
10	.396	52.7	40.5	38.3	39.9	41.6	N.E. . . .	Air.	0	
11	.406	54.2	38.5	36.9	39.1	40.7	N.E. . . .	Air.	0	
Midnight.	28.394	56.3	37.9	36.8	38.6	40.2	Calm . .	0	0	

TABULAR MEANS

OF THE

METEOROLOGICAL OBSERVATIONS,

MADE BY

THE U. S. NAVAL ASTRONOMICAL EXPEDITION,

AT

SANTIAGO DE CHILE.

TABULAR RESULTS.

TABLE XVII.

Mean atmospheric pressure at the several observation hours of each month; bar. reduced to 32° Fahr.

Year and month.	3 A. M.	6 A. M.	7 A. M.	9 A. M.	Noon.	3 P. M.	6 P. M.	9 P. M.	Midnight.	Daily mean of each year.	Daily mean of three y'rs.
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
November . . . 1849	a 28.037	b 28.052		a 28.062	a 28.047	a 28.025	a 28.036	a 28.060	a 28.044	*28.045	
1850		c .060		.062	.050	.029	.039	.062	.048	.050	28.047
1851		d .054	e 28.063	.058	.041	c 28.015	c 28.022	f .061	c .046	.045	
December . . . 1849	28.003	.031		.034	c .022	27.993	27.988	.020	.014	.013	
1850		.055		.058	.047	c 28.025	28.022	c .050	.037	.042	.039
1851		b 28.069	g .078	.072	28.062	28.038	28.039	28.074	28.067	28.062	
January 1850	h 27.972	f 27.988		.000	27.996	c 27.964	i 27.951	27.980	c 27.975	27.978	
1851		c 28.024		.030	28.025	28.003	28.002	28.025	28.016	28.018	.014
1852		o .039	v .063	.061	.055	c 28.022	f 28.018	.056	.048	.045	
February . . . 1850		.020		.032	.015	27.991	27.976	.024	.002	.008	
1851		.057		.069	.055	28.027	28.022	.051	28.037	28.045	.016
1852		f .011		.015	.001	27.976	27.975	.005	c 27.981	27.995	
March 1850	k 28.002	.025		.146	.032	28.005	28.010	.032	c 28.024	28.035	
1851		e .017		c .056	.043	.018	.018	.047	.039	.034	.037
1852		w .058	x .096	c .068	.052	.021	.022	.046	f .036	.041	
April 1850	.068	.088		.105	.088	.069	.072	.085	.084	.082	
1851		m .082	n .131	.111	c .097	c .078	c .080	.095	.095	.096	.074
1852		s .047	m .050	.063	.042	.018	c .037	.052	.048	.045	
May 1850	.084	.088		c .109	.097	.074	.084	.097	.094	.091	
1851		o .048	k .069	c .094	.073	.052	c .061	.075	.070	.070	.078
1852		u .070	i .067	.096	.078	.056	.066	.079	c .074	.073	
June 1850	.099	.106		.122	.106	.091	.107	.120	.116	.108	
1851		p .092	q .090	.125	.112	.089	.102	.105	.108	.117	.114
1852		e .100	y .131	.141	.121	.095	.112	.118	.120	.117	
July 1850	.083	.089		.108	.101	.077	c .096	.100	.096	.094	
1851			i .046	.070	.064	.039	c .058	.066	.061	.058	.091
1852		z .119	q .116	.138	.120	.102	.119	c .129	.135	.122	
August 1850	.102	.115		.136	.127	.101	115	.136	.129	.120	
1851			r .121	c .146	.133	.106	.110	.132	.125	.125	.124
1852		e .117	q .032	.145	.197	.111	.131	.143	e .147	.128	
September . . . 1850	l 28.071	.112		.125	.109	.081	.096	.112	.101	.101	
1851		s .082	t .129	.111	.100	.079	.094	.116	.105	.102	.113
1852			b .149	b .160	b .141	b .108	b .127	b .146	b .125	.137	
October 1850		c .109		.118	.106	.090	.105	c .123	c .110	.109	28.109
1851		h 28.113	e 28.110	28.118	28.112	28.088	28.100	28.120	28.104	28.108	
Annual means . . 1850		28.071		28.093	28.073	28.049	28.056	28.077	28.068	28.068	28.071
1851				.088	.076	.053	.059	.081	.073	.065	
Mean of two years . .				28.090	28.074	28.051	28.057	28.079	28.070	28.066	

a Fourteen observations.
b Thirteen observations.
c One observation omitted.
d Twenty-three observations.
e Six observations.
f Two observations omitted.
g Sixteen observations.
h Twenty-two observations.
i Four observations omitted.
k Eighteen observations.
l Seventeen observations.
m Eleven observations.
n Seven observations.
o Twelve observations.
p Four observations.
q Twenty-five observations.
r Three observations omitted.
s Nineteen observations.
t Ten observations.
u Twenty-one observations.
v Fifteen observations.
w Twenty-six observations.
x Five observations.
y Twenty-four observations.
z Two observations.
* Rejected in mean of three years.

TABLE XVIII.

Excess of the atmospheric pressure, at each observation hour, in the several years, above its mean monthly value at that hour, as derived from all the observations.

Year and month.	3 A. M.	6 A. M.	7 A. M.	9 A. M.	Noon.	3 P. M.	6 P. M.	9 P. M.	Midnight.	Daily mean of each year.	Daily mean of three y'rs.
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
November . . . 1849		— .003		+ .001	+ .001	+ .002	+ .004	— .001	— .002	*.002	
1850		+ .005		+ .001	+ .004	+ .006	+ .007	+ .001	+ .002	.004	.004
1851		— .001		— .003	— .005	— .008	— .010	.000	.000	.004	
December . . . 1849		— .021		— .021	— 022	— .026	— .028	— .028	— .025	.024	
1850		+ .003		+ .003	+ .003	+ .006	+ .006	+ .002	— .002	.004	.016
1851		+ .017		+ .017	+ .018	+ .019	+ .023	+ .026	+ .028	.021	
January 1850		— .029		— .030	— .029	— .032	— .039	— .040	— .038	.033	
1851		+ .007		.000	.000	+ .007	+ .012	+ .005	+ .003	.005	.023
1852		+ .022		+ .031	+ .030	+ .026	+ .028	+ .036	+ .035	.030	
February . . . 1850		— .009		— .007	— .009	— .007	— .015	— .003	— .005	.008	
1851		+ .028		+ .030	+ .031	+ .029	+ .031	+ .024	+ .030	.029	.020
1852		— .018		— .024	— .023	— .022	— .016	— .022	— .026	.022	
March 1850		.008		+ .056	— .010	— .010	— .007	— .010	— .009	.016	
1851		— .016		— .034	+ .001	+ .003	+ .001	+ .005	+ .006	.009	.012
1852		+ .025		— .022	.010	.006	.005	.004	.003	.011	
April 1850		.016		+ .012	.012	.009	.009	.008	.008	.011	
1851		+ .010	+ .041	+ .018	+ .021	+ .025	+ .017	+ .018	+ .019	.021	.021
1852		— .025	— .040	— .030	— .034	— .035	— .026	— .025	— .028	.030	
May 1850		+ .019		+ .009	+ .014	+ .013	+ .014	+ .013	+ .015	.014	
1851		— .021	+ .011	— .006	— .010	— .009	— .009	— .009	— .009	.010	.010
1852		+ ·001	— .011	.004	.005	.005	— .004	— .005	— .005	.005	
June 1850		— .030		.007	.007	.001	.000	+ .006	+ .001	.007	
1851		+ .066	— .020	— .004	— .001	— .003	— .005	— .009	— .007	.014	.011
1852		— .036	+ .021	+ .012	+ .008	+ .003	+ .005	+ .004	+ .005	.012	
July 1850		— .015		+ .003	+ .006	+ .004	+ .005	+ .002	— .001	.005	
1851			— .035	— .035	— .031	— .034	— .033	— .032	— .036	.037	.024
1852		+ .015	+ .035	+ .033	+ .025	+ .029	+ .028	+ .031	+ .038	.029	
August 1850		— .001		— .006	— .025	— .005	— .004	— .001	— .005	.007	
1851			+ .044	+ .004	— .019	.000	— .009	— .005	— .009	.013	.012
1852		+ .001	— .045	+ .003	+ .045	+ .005	+ .012	+ .006	+ .013	.016	
September . . . 1850		+ .015		— .007	— .008	— .008	— .010	— .013	— .009	.010	
1851		— .015	— .010	— .021	— .017	— .010	— .012	— .009	— .005	.012	.014
1852			+ .010	+ .028	+ .024	+ .019	+ .021	+ .021	+ .015	.020	
October 1850		— .002		.000	— .003	+ .001	+ .003	+ .002	+ .003	.002	.002
1851		+ .002		.000	+ .003	— .001	— .002	— .001	— .003	.002	
Annual means . . 1850		.012		.012	.011	.008	.010	.008	.008	.010	.014
1851				.014	.013	.012	.014	.012	.013	.015	
Mean of two years . .				.013	.012	.010	.012	.010	.010	.012	

* Rejected in daily mean of three years.

TABLE XIX.

Quarterly and annual means of the atmospheric pressure; barometer reduced to 32° Fahrenheit.

Month and year.	3 A. M.	6 A. M.	7 A. M.	9 A. M.	Noon.	3 P. M.	6 P. M.	9 P. M.	Midnight.	Daily means.
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
December 1849										
January 1850	*a* †27.987	28.013		28.022	28.011	27.983	27.972	28.008	27.997	28.001
February 1850										
December 1850										
January 1851		.045		.052	.042	28.018	28.015	.042	28.030	.035
February 1851										
December 1851										
January 1852		.040	*b* †28.070	.049	.039	.012	.011	.045	.032	.033
February 1852										
Mean of summer . . .		28.033		28.041	28.031	28.014	27.999	28.032	28.020	28.023
March 1850										
April 1850	28.051	28.067		28.120	28.072	28.047	28.055	28.071	28.067	28.069
May 1850										
March 1851										
April 1851		.049	*c* †28.110	.087	.071	.049	.053	.072	.068	.064
May 1851										
March 1852										
April 1852		.058	.048	.076	.057	.032	.042	.059	.053	.053
May 1852										
Mean of autumn . . .		28.058		28.094	28.067	28.043	28.050	28.067	28.063	28.062
June 1850										
July 1850	28.095	28.103		28.122	28.111	28.090	28.106	28.119	28.114	28.107
August 1850										
June 1851										
July 1851		*d* † .202	28.066	.114	.103	.078	.090	.101	.098	.096
August 1851										
June 1852										
July 1852		.112	.093	.141	.146	.103	.121	.130	.134	.122
August 1852										
Mean of winter . . .		28.107	28.089	28.126	28.120	28.090	28.106	28.117	28.115	28.108
November 1849*	28.037	28.052		28.062	28.047	28.025	28.036	28.060	28.044	
September 1850										
October 1850	*e* † .071	.094		.102	.088	.067	.080	.099	.086	28.088
November 1850										
September 1851										
October 1851		.083	28.101	.096	.084	.061	.072	.099	.085	.085
November 1851										
September 1852*			.149	.160	.141	.108	.127	.146	.125	
Mean of spring		28.088		28.099	28.086	28.064	28.076	28.099	28.085	28.086
Mean in 1850		28.071		28.093	28.073	28.049	28.056	28.077	28.068	28.070
Mean in 1851				.088	.076	.053	.059	.081	.073	.072
Mean of two years . .		28.071		28.090	28.074	28.051	28.057	28.079	28.070	28.071

a December, 1849, and January, 1850.
b December, 1851, and January, 1852.
c April and May, 1851.
d June, 1851.
e September, 1850.
* November, 1849, and September, 1852, not incorporated in the means.
† Rejected in the means.

TABLE XX.

Monthly and annual means of the atmospheric pressure at each observation hour; barometer reduced to 32° Fahrenheit.

Month.	3 A. M.	6 A. M.	7 A. M.	9 A. M.	Noon.	3 P. M.	6 P. M.	9 P. M.	Midnight.
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
January	*a* 27.972	28.017	*c* 28.063	28.030	28.025	27.996	27.990	28.020	28.013
February		.029		.039	.024	.998	.991	.027	.007
March	*a* 28.002	.030	*c* .026	.090	.042	28.015	28.017	.042	.033
April	*a* .068	.072	*d* .090	.093	.076	.053	.063	.077	.076
May	*a* .084	.069	*d* .078	.100	.083	.061	.070	.084	.079
June	*a* .099	.136	*d* .110	.129	.113	.092	.107	114	.115
July	*a* .083	*f* .104	*d* .081	.105	.095	.073	.091	.098	.097
August	*a* .102	*f* .116	*d* .077	.142	.152	.106	.119	.137	.134
*September	*a* .071	*f* .097	*d* .139	.132	.117	.089	.106	.125	.110
October		*g* .111	*e* .110	*g* .118	*g* .109	*g* .089	*g* .102	*g* .121	*g* .107
November	*b* .037	.055	*e* .063	.061	.046	.023	.032	061	.046
December	*b* 28.003	28.052	*e* 28.078	28.055	28.044	28.019	28.016	28.048	28.039
		28.074		28.091	28.077	28.051	28.059	28.079	28.071

a 1850 observations.
b 1849 observations.
c 1852 observations.
d 1851 and 1852 observations.
e 1851 observations.
f 1850 and 1852 observations.
g 1850 and 1851 observations.
* 1852 observations end September 13th.

TABLE XXI.

Mean temperature of the air at the several observation hours of each month.

Year and month.	3 A. M.	6 A. M.	7 A. M.	9 A. M.	Noon.	3 P. M.	6 P. M.	9 P. M.	Midnight.	Daily mean of each year.	Daily mean of three y'rs.
	°	°	°	°	°	°	°	°	°	°	°
November . . . 1849	a 63.3	b 62.0		a 66.4	a 72.3	a 76.6	a 74.2	a 69.4	a 66.9	*68.89	
1850		c 53.3		63.3	70.3	72.6	67.4	58.2	54.8	62.84	63.19
1851		d 56.3	e 57.3	65.7	71.9	c 73.8	c 68.5	f 58.8	e 56.1	63.55	
December . . . 1849	65.1	63.9		67.6	c 73.2	77.1	75.8	71.2	67.8	70.21	
1850		60.3		68.3	74.7	c 77.3	73.1	c 64.6	61.1	68.49	68.60
1851		b 58.9	g 62.2	68.4	74.8	78.1	73.5	62.5	58.3	67.09	
January 1850	h 67.2	f 67.3		69.8	75.2	e 79.9	i 79.2	74.2	c 70.6	72.92	
1851		c 61.7		71.4	78.3	81.3	76.1	66.6	62.8	71.17	70.88
1852		o 60.5	v 63.3	69.8	76.9	c 80.3	f 74.4	63.5	59.6	68.54	
February . . . 1850		64.1		67.9	74.3	79.2	78.6	72.9	69.3	72.33	
1851		61.3		69.2	76.4	80.5	75.0	66.8	63.2	70.34	71.17
1852		f 60.0		70.2	78.5	82.4	76.0	66.0	c 62.8	70.84	
March 1850	k 60.4	60.1		64.5	71.5	75.8	73.4	68.4	c 63.5	67.20	
1851		e 58.5		c 63.9	72.6	76.7	71.1	63.1	59.5	66.49	66.81
1852		w 55.3	z 59.8	c 66.9	75.4	79.8	73.0	64.0	f 59.9	66.75	
April 1850	52.6	52.3		56.8	62.4	66.4	62.5	58.3	54.9	56.40	
1851		m 48.3	n 52.0	55.8	c 63.8	c 65.7	c 60.2	55.2	52.8	56.60	56.05
1852		s 50.0	m 51.0	59.1	67.9	70.9	c 63.1	57.2	54.1	59.16	
May 1850	48.8	47.4		c 53.2	58.1	61.4	56.2	52.2	50.5	53.48	
1851		o 48.1	k 46.6	c 53.1	62.0	63.9	c 57.5	52.9	50.4	54.31	53.22
1852		u 44.5	t 45.2	51.9	59.7	62.0	54.8	49.8	c 47.2	51.89	
June 1850	44.1	43.4		48.3	52.9	53.9	49.9	46.9	45.5	48.11	
1851		p 41.5	q 42.7	47.5	58.1	57.7	51 8	47.8	45.9	50.12	48.89
1852		e 42.2	y 43.2	47.6	54.6	56.0	50.5	47 0	44.7	48.22	
July 1850	43.7	42.3		46.4	53.5	55.7	c 50.6	47.3	45.1	48.08	
1851			t 44.1	47 1	52.6	53.4	c 49.3	47.2	45.5	48.46	47.44
1852		x 39.9	q 39.2	44.5	52.3	53.9	48.2	c 43.7	41.4	45.77	
August 1850	46.7	45.2		50.4	57.7	60.5	55.2	50.8	48.8	51.92	
1851			r 45.8	c 52.1	59.9	61.7	55.5	51.3	48.4	53.59	51.44
1852		e 40.2	q 43.1	49.1	56.1	58.1	52.2	47.2	c 45.0	46.86	
September . . . 1850	l 48.1	47.5		54.1	61.0	63.1	57.6	52.5	49.7	54.20	
1851		s 47.2	t 50.4	55.2	61.8	64.2	57.8	52.5	49.7	54.85	53.98
1852			b 46.5	b 51.6	b 59.0	b 62.2	b 55.2	b 49.2	b 46.6	52.90	
October 1850		c 50.3		58.6	63.0	65.3	c 61.5	c 55.9	c 53.6	58.31	58.08
1851		h 51.5	e 51.9	59.0	65.0	67.5	61.2	54.8	51.9	57.85	
Annual mean . . 1850		52.79		58.47	64.55	67.59	62.18	58.52	55.62	59.69	
1851				59.03	66.17	68.71	63.12	56.62	53.71	59.53	
Mean of two years . .				58.75	65.36	68.15	62.65	57.57	54.66	59.61	59.30

a Fourteen observations.
b Thirteen observations.
c One observation omitted.
d Twenty-three observations.
e Six observations.
f Two observations omitted.
g Sixteen observations.
h Twenty-two observations.
i Four observations omitted.
k Eighteen observations.
l Seventeen observations.
m Eleven observations.
n Seven observations.
o Twelve observations.
p Four observations.
q Twenty-five observations.
r Three observations omitted.
s Nineteen observations.
t Ten observations.
u Twenty-one observations.
v Fifteen observations.
w Twenty-six observations.
x Five observations.
y Twenty-four observations.
z Two observations.
* Rejected in mean of three years.

TABLE XXII.

Variation of the monthly temperature at each hour from the mean derived from all the observations in corresponding months of the different years.

Year and month.	3 A. M.	6 A. M.	7 A. M.	9 A. M.	Noon.	3 P. M.	6 P. M	9 P. M.	Midnight	Daily mean of each year.	Daily mean of three y'rs.
		°	°	°	°	°	°	°	°	°	°
November . . 1849		*a* +4.8		*b* +1.3	*b* +0.8	*b* +2.2	*b* +4.2	*b* +7.3	*b* +7.6	* 4.03	
1850		*c* −3.9		−1.8	−1.2	−1.8	−2.6	−3.9	−4.5	2.81	2.15
1851		*d* −0.9		+0.6	+0.4	*c* 0.5	*c* −1.5	*c* −3.3	*c* −3.2	1.49	
December . . . 1849		+2.9		−0.5	*c* −1.0	0.4	+1.7	+5.1	+5.4	2.43	
1850		−0.7		+0.2	+0.5	*c* −0.2	−1.0	*e* −1.5	−1.3	0.77	1.63
1851		*a* −2.1		+0.3	+0.6	+0.6	−0.6	−3.6	−4.1	1.70	
January 1850		*e* +4.1		−0.5	−1.6	*c* −0.6	*f* +2.6	+6.1	*c* +6.3	3.03	
1851		*c* −1.5		+1.1	+1.5	+0.8	−0.5	−1.5	−1.5	1.20	2.13
1852		*g* −2.7		−0.5	+0.1	*c* −0.2	*e* −2.2	−4.6	−4.7	2.14	
February . . . 1850		+2.3		−1.2	−2.1	−1.5	+2.1	+4.3	+4.2	2.53	
1851		−0.5		+0.1	0.0	−0.2	−1.5	−1.8	−1.9	0.86	1.71
1852		*e* −1.8		+1.1	+2.1	+1.7	−0.5	−2.6	*c* −2.3	1.73	
March 1850		+2.1		−0.6	−1.7	−1.6	+0.9	+3.2	+2.5	1.80	
1851		*h* +0.5		*c* −1.2	−0.6	−0.7	−1.4	−2.1	−1.5	1.14	1.55
1852		*i* −2.7		*c* +1.8	+2.2	+2.4	+0.5	−1.2	*e* −1.1	1.70	
April 1850		+2.1		−0.4	−2.0	−1.3	+1.2	+1.4	+1.0	1.34	
1851		*k* −1.9	*l* +0.5	−1.4	*c* −1.6	*c* −2.0	*c* −2.1	−1.7	−1.1	1.54	1.40
1852		*m* −0.2	*k* −0.5	+1.9	+3.5	+3.2	*c* +0.8	+0.3	+0.2	1.32	
May 1850		+0.7		*c* 0.5	−1.8	−1.0	0.0	0.6	1.1	0.81	
1851		*n* +1.4	*o* +0.7	*c* +0.4	+2.1	+1.5	*c* +1.3	+1.3	+1.0	1.21	1.08
1852		*p* −2.2	*q* −0.7	−0.8	−0.2	−0.4	−1.4	−1.8	*c* −2.2	1.21	
June 1850		+1.0		+0.5	−1.6	−2.0	−0.8	−0.3	+0.1	0.90	
1851		*r* −0.9	*s* −0.3	−0.3	+1.6	+1.8	+1.1	+0.6	+0.5	0.89	0.68
1852		*h* −0.2	*t* +0.2	−0.2	0.1	0.1	−0.2	−0.2	−0.7	0.24	
July 1850		+1.2		+0.4	+0.7	+1.4	*c* +1.2	+1.2	+1.1	1.03	
1851			*f* +2.4	+1.1	−0.2	−0.9	*c* −0.1	+1.1	+1.5	1.04	1.20
1852		*u* −1.2	*s* −2.5	−1.5	0.5	−0.4	−1.2	*c* −2.4	−2.6	1.54	
August 1850		+2.5		−0.1	−0 2	+0.4	+0.9	+1.0	+1.4	0 93	
1851			*v* +1.3	*c* +1.6	+2.0	+1.6	+1.2	+1.5	+1.0	1.46	1.47
1852		*h* −2.5	*s* −1.4	−1.4	−1.8	−2.0	−2.1	−2.6	*c* −2.4	2.03	
September . . . 1850		+0.3		+0.5	+0.4	−0.1	+0.7	+1.1	+1.0	0.59	
1851		*m* 0.0	*q* +1.9	+1.6	+1.2	+1.0	+0.9	1.1	+1.0	1.09	1.16
1852			*a* −2.0	*a* −2.0	*a* −1.6	*a* −1.0	*a* −1.7	*a* 2.2	*a* −2.1	1.80	
October 1850		*c* −0.6		−0.2	−1.0	−1.1	*c* +0.1	*c* +0.5	*c* +0.8	0.61	0.63
1851		*w* +0.6		+0.2	+1.0	+1.1	−0.2	−0.6	−0.9	0.66	
Annual means . . 1850		1.79		0.57	1.23	1.08	1.17	2.09	2.11	1.43	
1851				0.82	1.07	1.06	1.03	1.68	1.60	1.19	
Mean of two years . .				6.69	1.15	1.07	1.10	1.88	1.85	1.31	1.40

a Thirteen observations.
b Fourteen observations.
c One observation omitted.
d Twenty three observations.
e Two observations omitted.
f Four observations omitted.
g Twelve observations.
h Six observations omitted.
i Twenty six observations.
k Eleven observations.
l Seven observations.
m Nineteen observations.
n Twelve observations.
o Eighteen observations.
p Twenty one observations.
q Ten observations.
r Four observations.
s Twenty five observations.
t Twenty-four observations.
u Two observations.
v Three observations omitted.
w Twenty-two observations.
* Rejected in mean of three years.

TABLE XXIII.

Quarterly and annual means of the temperature of the air.

Year and month.	3 A. M.	6 A. M.	a7 A. M.	9 A. M.	Noon.	3 P. M.	6 P. M.	9 P. M.	Midnight.	Daily means.
	°	°	°	°	°	°	°	°	°	°
December 1849										
January 1850	67.1	65.1		68.4	74.2	78.7	77.9	72.8	69.2	71.7
February 1850										
December 1850										
January 1851		61.1		69.6	76.5	79.7	74.7	66.0	62.4	70.0
February 1851										
December 1851										
January 1852		59 8	b62.8	69.5	76.7	80.3	74.6	64.0	60.2	68.5
February 1852										
Mean of summer	67.1	62.0	62.8	69.2	75.8	79.6	75.7	67.6	63.9	70.1
March 1850										
April 1850	53.9	53.3		58.2	64.0	67.9	64.4	59.6	56.3	59.7
May 1850										
March 1851										
April 1851		51 6	c49.3	57.6	65.8	68.8	62.9	57.1	54.2	58.4
May 1851										
March 1852										
April 1852		49.9	52.0	59.3	67.7	70.9	63.6	57.0	53.7	59.3
May 1852										
Mean of autumn	53.9	51.6	50.7	58.4	65.8	69.2	63.6	57.9	54.7	59.1
June 1850										
July 1850	44.8	43.6		48.4	54.7	56.7	51.9	48.3	46.5	49.4
August 1850										
June 1851										
July 1851		d41.5	44.2	48.9	56.2	57.6	52.2	48.8	46.6	49.5
August 1851										
June 1852										
July 1852		40.8	41.8	47.1	54.3	56 0	50.3	46.0	43.7	47.5
August 1852										
Mean of winter	44.8	42.0	43.0	48.1	55.1	56.8	51.5	47.7	45.6	48.8
November 1849	63.3	62.0		66.4	72.3	76.6	74.2	69.4	66.9	68.9
September 1850										
October 1850	e48.1	50.4		58.7	64.8	67.0	62.2	55.5	52.7	57.4
November 1850										
September 1851										
October 1851		51.7	53.2	60.0	66.2	68.5	62.5	55.4	52.6	58.8
November 1851										
September 1852		46.9	46.5	51.6	59.0	62.2	55.2	49.2	46.6	52.2
Mean of spring	55.7	52.8	49.9	59.2	65.6	68.6	63.5	57.4	54.7	59.3
Mean in 1850		52.8		58.6	64.6	67.6	63.9	58.5	55.6	60.2
Mean in 1851		53.3	50.3	59.0	66.2	68.7	63.1	56.6	53.7	58.9
Mean of two years		53.1	50.3	58.8	65.4	68.2	63.5	57.6	54.7	59.6

a During the years 1851 and 1852 the observations were made irregularly at the hours of 6 and 7 A. M.
b Mean of December, 1851, and January, 1852, only.
c Mean of April and May.
d Mean of June only.
e Mean of September.

TABLE XXIV.

Monthly and annual means of the temperature of the air at the several observation hours.

Month.	3 A. M.	6 A. M.	7 A. M.	9 A. M.	Noon.	3 P. M.	6 P. M.	9 P. M.	Midnight.	Daily m'n.
	°	°	°	°	°	°	°	°	°	°
January	67.2	63.2	63.3	70.3	76.8	80.5	76.6	68.1	64.3	
February	69.1	61.8		69.1	76.4	80.7	76.5	68.6	65.1	
March	60.4	58.0	59.8	65.1	73.2	77.4	73.5	65.2	61.0	
April	52.6	50.2	51.5	57.2	64.4	67 7	62.3	56.9	53.9	
May	48.8	46.7	45.9	52.7	59.9	62.4	56.2	51.6	49.4	
June	44.1	42.4	43.0	47.8	54.5	55.9	50.7	47.2	45.4	
July	43.7	41.1	41.7	46.0	42.8	54.3	49.4	46.1	44.0	
August	46.7	42.7	44.5	50.5	57.9	60.1	54.3	49.8	47.4	
September	48.1	47.2	48.5	53.6	60.6	63.2	56.9	51.4	48.7	
October		50.9	51.9	58.8	64.0	66.4	61.4	55.4	52.8	
November	63.3	57.2	57.3	65.1	71.5	74.4	70.0	62.1	59.3	
December	65.1	61.0	62.2	68.1	74.2	77.5	74.1	66.1	62.4	
Annual mean		51.87		58.69	65.52	68.36	63.41	57.37	54.47	

TABLE XXV.

Mean monthly and annual temperature deduced from all the tri-hourly observations.

Month.	1849.	1850.	1851.	1852.	Monthly means.
	°	°	°	°	°
January		72.9	71.2	68.5	71.87
February		71.9	70.3	70.8	71.00
March		67.2	66.5	66.8	66.83
April		58.4	56.6	59.2	58.07
May		53.5	54.3	51.9	53.23
June		48.1	48.4	48.2	48.23
July		48.1	48.5	45.4	47.33
August		51.9	53.5	48.9	51.43
September		54.2	54.9	52.2*	54.55
October		58.3	57.9		58.10
November	68.9*	62.8	63.6		63.20
December	70.2	68.5	67.1		68.60
Annual means		59.65	59.40		59.37

* Being for parts of months only, they are not used in obtaining the final monthly and annual means.

TABLE XXVI.

Mean monthly maxima and minima of the temperature.

Month.	1849.		1850.		1851.		1852.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°	°	°	°	°	°	°	°
January			80.6	66.3	81.0	57.3	79.6	54.6
February			80.3	64.4	80.7	57.9	82.1	57.2
March			77.1	60.6	76.9	54.5	79.5	54.0
April			65.6	53.1	66.9	50.3	72.0	50.7
May			62.6	46.2	64.0	47.5	63.2	44.6
June			55.3	41.9	57.9	43.2	56.7	42.2
July			57.6	41.0	54.8	43.4	54.7	39.1
August			60.7	45.5	62.9	45.5	59.4	42.2
September			63.7	47.2	65.2	47.0	62.6	43.9
October			66.6	49.1	68.5	47.5		
November	77.9	59.7	74.7	51.0	75.2	50.8		
December	77.6	62.1	78.1	55.6	78.4	53.4		

TABLE XXVII.

Mean daily range of the temperature in each month, from the registering thermometers.

Month.	1849.	1850.	1851.	1852.	Monthly means.
	°	°	°	°	°
January		14.3	23.7	25.0	21.00
February		15.9	22.8	24.9	21.20
March		16.5	22.4	25.5	21.47
April		12.5	16.6	21.3	16.80
May		16.4	16.5	18.6	17.17
June		13.4	14.7	14.5	14.20
July		16.6	11.4	15.6	14.53
August		15.2	17.4	17.2	16.60
September		16.5	18.2	18.7*	17.35
October		17.5	21.0		19.25
November	18.2*	23.7	24.4		22.10
December	15.5	22.5	25.0		21.00
Annual means		16.75	19.51		18.56

* Being for parts of months only, they are not incorporated in the final monthly and annual means.

TABLE XXVIII.

Showing the days' maxima, minima, and range of the temperature in each month from the registering thermometers.

Month.	1849.					1850.				
	Maximum.	Minimum.	Range of temperature.	Day of maximum.	Day of minimum.	Maximum.	Minimum.	Range of temperature.	Day of maximum.	Day of minimum.
	°	°	°			°	°	°		
January						84.0	58.5	25.5	18,28	21
February						84.6	60.0	24.6	21	15,28
March						82.2	53.8	28.4	21	31
April						75.6	45.5	30.1	18	13
May						76.4	34.7	41.7	3	31
June						62.2	32.5	29.7	25	4
July						64.7	33.0	37.7	6	23
August						70.0	36.0	34.0	23	11
September						72.7	42.5	30.2	10	1
October						76.8	37.0	39.8	19	9
November	80.5	51.5	29.0	29	17	83.5	42.5	41.0	14	13,14
December	83.7	52.5	31.2	17	5	88.2	48.0	40.2	13	1

TABLE XXVIII—Continued.

Month.	1851.					1852.				
	Maximum.	Minimum.	Range of temperature.	Day of maximum.	Day of minimum.	Maximum.	Minimum.	Range of temperature.	Day of maximum.	Day of minimum.
	°	°	°			°	°	°		
January	87.3	47.8	39.5	22	6	84.8	43.8	41.0	1	14
February	85.2	52.2	33.0	17	22	90.3	49.5	40.8	7	19
March	83.3	50.2	33.1	1	16,31	84.2	43.7	40.5	2	19
April	75.0	38.0	37.0	4	29	83.7	40.2	43.5	11	18
May	72.7	40.6	32.1	2,7	27	75.1	36.0	39.1	11	26
June	65.6	36.6	29.0	16	12	66.2	36.2	30.0	30	15
July	65 5	35.6	29.9	30	10	67.0	31.6	35.4	10	23
August	74.6	38.6	36.0	23	15	69.2	35.2	34.0	9	22
September	74.2	42.0	32.2	27	14	66.5	37.3	29.2	9,10	2
October	79.8	41.4	38.4	24	12					
November	84.8	41.4	43.4	30	12					
December	84.8	45.6	39.2	6	22					

TABLE XXIX.

Mean monthly and annual temperatures from the maxima and minima.

Month.	1849.	1850.	851.	1852.	Monthly means.
	°	°	°	°	°
January		73.5	69.2	67.1	69.93
February		72.4	69.3	69.7	70.47
March		68.9	65.7	66.8	67.13
April		59.4	58.6	61.4	59.80
May		54.4	55.8	53.9	54.70
June		48.6	50.6	49.5	49.57
July		49.3	49.1	46.9	48.43
August		53.1	54.2	50.8	52.70
September		55.5	56.1	53.3*	55.80
October		57.9	58.0		57.95
November	68.8*	62.9	63.0		62.95
December	69.9	66.9	65.9		67.57
Annual means		60.23	59.63		59.75

* Being for parts of months only, they have not been used to obtain the monthly and annual means.

TABLE XXX.

Mean monthly and annual temperature from all the observations.

Month.	Table XXV.	Table XXIX.	Monthly means.
	°	°	°
January	71.87	69.93	70.90
February	71.00	70.47	70.73
March	66.83	67.13	66.98
April	58.07	59.80	58.93
May	53.23	54.70	53.96
June	48.23	49.57	48.90
July	47.33	48.43	47.88
August	51.43	52.70	52.07
September	54.55	55.80	55.18
October	58.10	57.95	58.03
November	63.20	62.95	63.08
December	68.60	67.57	68.08
Annual means	59.37	59.75	59.56

TABLE XXXI.

Mean temperature of evaporation (wet-bulb thermometer) at the several observation hours of each month.

Year and month.	3 A. M.	6 A. M.	7 A. M.	9 A. M.	Noon.	3 P. M.	6 P. M.	9 P. M.	Midnight.	Daily mean of each yea	Daily mean of three y'rs.
	°	°	°	°	°	°	°	°	°	°	°
November . . . 1849	a 60.6	b 59.4		a 63.8	a 67.3	a 69.9	a 68.6	a 65.7	a 62.8	*64.76	
1850		c 49.8		55.4	57.7	58.0	56.0	52.0	49.9	54.11	54.33
1851		d 50.9	e 51.2	56.4	58.5	c 58.9	c 56.8	f 52 5	c 51.1	54.54	
December . . . 1849	55.1	56.3		58.2	c 61.0	61.9	61.3	58.7	56.4	58.61	
1850		54 3		59.1	61.5	c 61.9	59.9	c 56.1	54.3	58.16	58.00
1851		b 52.6	g 55.0	58.7	61.2	62.0	59.8	55.3	53.3	57.94	
January 1850	h 55.1	f 56.0		58.0	60.9	c 61.9	c 61.0	i 59.3	c 56.7	58.61	
1851		c 55.7		60.8	62.9	62.7	61.2	57.6	55.7	59.51	58.93
1852		o 54.9	v 55.2	59.9	63.1	c 63 3	f 61.0	57.0	55.0	58.67	
February . . . 1850		55.4		58.2	61.0	62.4	61.1	58 2	57.6	59.13	
1851		55.7		60.2	63.1	63.6	62.4	58.5	56.9	60.06	59.95
1852		f 54.9		61.2	64.2	65.0	62.7	58.8	c 57.2	60.66	
March 1850	k 51.7	51.6		56.8	59.9	60.6	59.1	56.6	c 53.7	56.95	
1851		e 52.6		c 56.6	60.4	61.4	58.8	55.2	53.3	56.90	56.75
1852		w 50.8	x 53.8	c 57.9	61.2	62.5	60.2	56.5	f 54.0	57.11	
April 1850	47.1	46.9		51.7	55.5	57.0	54.2	51.1	48.8	51.54	
1851		m 45.6	n 50.4	51.8	c 55.8	c 56.6	c 53.9	51.0	49.4	51.81	52.28
1852		s 47.8	m 48.6	54.0	58.3	59.1	c 56.1	53.0	51.0	53.49	
May 1850	45.8	45.3		c 49.6	53.3	53.9	51.1	48.8	47.2	49.44	
1851		o 45.2	k 44.5	c 49.7	54.5	55.2	c 52.5	49.3	47.4	49.79	48.84
1852		w 42.5	t 43.8	47.5	52.0	52.6	49.7	46.7	c 44.6	47.30	
June 1850	41.9	41.4		45.0	48.2	48.6	46.2	44.2	43.0	44.81	
1851		p 39.1	q 40.5	44.7	50.1	51.0	47.9	44.9	43.2	45.17	44.98
1852		e 40.6	y 41.2	44 3	49.1	49.8	47.3	44.7	42.8	44.97	
July 1850	41.1	39.8		43.7	48.3	49.0	c 46.4	43.7	42.2	44.97	
1851			t 41.9	44.6	48.0	48.2	c 45.8	44.3	42.8	45.09	43.92
1852		z 39.1	q 37.6	41.7	47.1	47 6	44.7	c 41.4	40.0	42.40	
August 1850	43.6	42.6		47.6	51.6	52.4	49.8	47.2	45.3	47.51	
1851			43.6	r 48.4	c 53.0	53.6	50.4	47.9	46.0	48.98	47.21
1852		37.3	e 41.5	q 45.6	49.9	50.8	48.2	44.9	c 43.0	45.15	
September . . . 1850	l 45.1	45.2		49.8	53.0	53.9	51.6	48.4	46.6	49.20	
1851		s 45.0	t 47.1	50.5	54.1	55.1	52.3	49.1	46.9	50.01	49.14
1852		44.7	b 44.7	47.8	52.3	54.1	50.3	47.0	44.9	48.22	
October 1850		47.3		53.0	55.1	55.9	52.8	50.3	48.5	51.84	
1851		47 7	47.9	52.3	54.6	55 3	52.9	49.8	48.0	51.06	51.45

a Fourteen observations.
b Thirteen observations.
c One observation omitted.
d Twenty-three observations.
e Six observations.
f Two observations omitted.
g Sixteen observations.
h Twenty-two observations.
i Four observations omitted.
k Eighteen observations.
l Seventeen observations.
m Eleven observations.
n Seven observations.
o Twelve observations.
p Four observations.
q Twenty-five observations.
r Three observations.
s Nineteen observations.
t Ten observations.
u Twenty-one observations.
v Fifteen observations.
w Twenty-six observations.
x Five observations.
y Twenty-four observations.
z Two observations.
* Rejected in mean of three years.

TABLE XXXII.

Excess of the mean temperature of the air at the several observation hours of each month, above the mean temperature of evaporation at the same hours.

Year and month.	3 A. M.	6 A. M.	7 A. M.	9 A. M.	Noon.	3 P. M.	6 P. M.	9 P. M.	Midnight.	Daily mean of each year.	Daily mean of three y'rs.
	°	°	°	°	°	°	°	°	°	°	°
November . . . 1849	2.7	2.6		2.6	5.0	6.7	5.6	3.7	4.1	4.13	
1850		3.5		7.9	12.6	14.6	11.4	6.2	4.9	8.73	8.88
1851		5.4	6.1	9.3	13.4	15.0	11.7	6.3	5.0	9.03	
December . . . 1849	10.0	7.6		9.4	12.2	15.2	14.5	12.5	11.4	11.60	
1850		6.0		9.2	13.2	15.4	13.2	8.5	6.8	10.33	10.59
1851		6.3	7.2	9.7	13.6	16.1	13.7	7.2	5.0	9.85	
January 1850	12.1	11.3		11.8	14.3	18.0	18 2	14.9	13.9	14.31	
1851		6.0		10.6	15.4	18.6	14.9	9.0	7.1	11.66	11.94
1852		5.6	8.1	9.9	13.8	17.0	13.4	6.5	4.6	9.86	
February . . . 1850		8.7		9.7	13.3	16.8	17.5	14.7	11.7	13.20	
1851		5.6		9.0	13.3	16.9	12.6	8.3	6.3	10.98	11.25
1852		5.1		9.0	14.3	17.4	13.3	7.2	5.6	10.27	
March 1850	8.7	8.5		7.7	11.6	15.2	14.3	11.8	9 8	10.95	
1851		5.9		7.3	12.2	15.3	12.3	7.9	6.2	9.59	10.06
1852		4.5	6.0	9.0	14.2	17.3	12.8	7.5	5.9	9.65	
April 1850	5.5	5.4		5.1	6.9	9.4	9.3	7.2	6.1	6.86	
1851		2.7	1.6	4.0	7.0	9.1	6.3	4.2	3.4	4.79	5.78
1852		2.2	2.4	5.1	9.6	11.8	7.0	4.2	3.1	5.68	
May 1850	3.0	2.1		3.6	4.8	7.5	5 1	3.4	3.3	4.10	
1851		2.9	2.1	3.4	7.5	8.7	5.0	3.6	3.0	4.53	4.41
1852		2.0	2.4	4.4	7.7	9.4	5.1	3.1	2.6	4.59	
June 1850	2.2	2.0		3.3	4.7	5.3	3.7	2.7	2.5	3.30	
1851		2.4	2.2	2.8	6.0	6.7	3.9	2.9	2.7	3.70	3.42
1852		1.6	2 0	3 3	5.5	6.2	3.2	2.3	1.9	3.25	
July 1850	2.6	2.5		2.7	5.2	6.7	4.2	3.7	2.9	3.81	
1851			2.2	2.5	4.6	5.2	3.5	2.9	2.7	3.37	3.39
1852		0.8	1.6	2.8	5.2	6.3	3.5	2.3	1.4	2.99	
August 1850	3.1	2.6		2.8	6.1	8.1	5.4	3.6	3.5	4.40	
1851			2.2	3.7	6.9	8.1	5 1	3.4	2.4	4.54	4.22
1852		2.2	1.6	3.5	6.2	7.3	4.0	2.3	2.0	3.73	
September . . . 1850	3.0	2.3		4.3	8.0	9.2	6.0	4.1	3.1	5.00	
1851		2.2	3.3	4.7	7.7	9.1	5.5	3.4	2.8	4.84	4.59
1852		2.2	1.8	3.8	6.7	8.1	4.9	2.2	1.7	3.93	
October 1850		3.0		5.6	7.9	9.4	8.7	5.6	5.1	6.47	
1851		3.8	4.0	6.7	10.4	12.2	8.3	5.0	3.9	6.79	6.63
Annual means . . 1850		4.83		6.14	9.05	11.30	9.75	7.20	6.13	7.62	
1851				6.14	9 22	11.75	8.57	5.34	4.21	6.22	
Mean of two years . .				6.14	9.48	11.52	9.16	6.27	5.17	7.27	7.10

TABLE XXXIII.

Quarterly and annual means of the temperature of evaporation, (wet-bulb thermometer.)

Month and year.	3 A. M.	6 A. M.	7 A. M.	9 A. M.	Noon.	3 P. M.	6 P. M.	9 P. M.	Midnight.	Daily means.
	°	°	°	°	°	°	°	°	°	°
December 1849										
January 1850	55.1	55.9		58.1	61.0	62.1	61.1	58.7	56.9	58.61
February 1850										
December 1850										
January 1851		55.1		60.0	62.8	62.7	61.2	57.4	55.6	59.36
February 1851										
December 1851										
January 1852		54.1	55.1	59.9	62.8	63.4	61.2	57.0	55.2	58.59
February 1852										
Mean of summer	55.10	55.03	55.10	59.33	62.20	62.73	61.17	57.70	55.90	58.25
March 1850										
April 1850	48.2	47.9		52.7	56.2	57.2	54.8	52.2	49.9	52.39
May 1850										
March 1851										
April 1851		47.8	47.5	52.7	56.9	57.7	55.1	51.8	50.0	52.41
May 1851										
March 1852										
April 1852		47.0	48.1	53.1	57.2	58.1	55.3	52.1	49.1	52.50
May 1852										
Mean of autumn	48.20	47.57	47.80	52.83	56.77	57.67	55.07	52.03	49.67	51.96
June 1850										
July 1850	42.2	41.3		45.4	49.4	50 0	47.5	45.0	43.5	45.54
August 1850										
June 1851										
July 1851		39.1	42.0	45.9	50.4	50.9	48.0	45.7	44.0	45.75
August 1851										
June 1852										
July 1852		39.0	40.1	43.9	48.7	49.4	46.7	43 7	41.9	44.18
August 1852										
Mean of winter	42.20	39.80	41.05	45.07	49.50	46 77	47.40	44.80	43.13	44.41
November 1849*	60.6	59.4		63.8	67.3	69.9	69.6	65.7	62.8	
September 1850										
October 1850	45.1	47.4	47.1	52.7	55.3	55.9	53.5	50.2	48.3	50 61
November 1850										
September 1851										
October 1851		47.9	47.9	52.7	55.7	56.4	54.0	50.5	48.7	51.73
November 1851										
September 1852*		44.7	44.7	47.8	52.3	54.1	50.3	47.0	44.9	
Mean of spring	45 10	47 65	47 50	52.70	55.50	56 15	53 75	50.35	48.50	50.80
Mean of 1850	47.65	48.13		52.23	55.48	56.30	54.23	51.53	49.65	51.79
Mean of 1851		47.48		52.63	56.45	56.93	54.58	51.35	49.53	52.29
Mean of two years		47.81		52.53	55.98	56.61	54.40	51.44	49.61	52.04

* Observations not used in obtaining the means.

TABLE XXXIV.

Mean difference between the temperature of the air and that of evaporation in the four seasons of the year.

Hour.	Autumn.	Winter.	Spring.	Summer.	Annual means.
	°	°	°	°	°
3 A. M.	5.73	2.63	2.85*	11.05†	5.56
6 A. M.	4.02	1.98	3.12	6.91	4.01
7 A. M.	2.90	1.98	3.80	7.65†	4.08
9 A. M.	5.51	3.04	5.61	9 81	5.99
Noon	9.06	5.60	8.96	13.71	9.33
3 P. M.	11.52	6.68	10.54	16.82	11.39
6 P. M.	8.58	4.06	7.76	14.59	8.75
9 P M.	5.86	2.90	4.56	9.87	5.80
Midnight	4.82	2.44	3.83	8.04	4.78
Daily means	6.45	3.48	5.67	10.94	6.63

Equal weights having been given to each result, the final daily and annual means differ from those of TABLE XXXII.

* September and November observations only.

† December and January observations only.

TABLE XXXV.

Monthly means of the force of the aqueous vapor at each hour of observation.

Year and month.	3 A. M.	6 A. M.	7 A. M.	9 A. M.	Noon.	3 P. M.	6 P. M.	9 P. M.	Midnight.	Daily mean of each year.	Daily mean of three y'rs.
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	
November . . . 1849	*a* .506	*b* .494		*a* .566	*a* .616	*a* .652	*a* .634	*a* .586	*a* .531	* .573	
1850		*c* .334		.365	.353	.336	.338	.335	.390	.340	.341
1851		*d* .328	*e* .325	.366	.357	*c* .347	*c* .347	*f* .341	*c* .335	.343	
December . . . 1849	.339	.392		.394	*c* .413	.398	.402	.370	.344	.380	
1850		.369		.411	.412	*c* .396	.382	*c* .370	.360	.386	.381
1851		*b* .341	*g* .366	.399	.401	.390	.376	.371	.365	.376	
January 1850	*h* .318	*f* .339		.372	.389	*c* .369	*i* .350	.355	*c* .348	.355	
1851		*c* .390		.496	.415	.377	.388	.388	.378	.395	.383
1852		*o* .382	*v* .360	.417	.435	*c* .406	*f* .400	.405	.394	.400	
February . . . 1850		.356		.391	.402	.391	.380	.382	.360	.363	
1851		.394		.432	.441	.413	.435	.411	.406	.419	.404
1852		*f* .387		.450	.451	.435	.433	.427	*c* .417	.429	
March 1850	*k* .304	.304		.389	.399	.371	.358	.343	*c* .320	.349	
1851		*e* .346		*c* .390	.402	.388	.374	.362	.353	.374	.370
1852		*w* .337	*x* .362	*c* .393	.395	.387	.393	.386	*f* .366	.377	
April 1850	.280	.279		.342	.377	.374	.331	.312	.294	.394	
1851		*m* .292	*n* .362	.355	*c* .381	*c* .371	*c* .360	.342	.330	.349	.344
1852		*s* .323	*m* .331	.374	.393	.384	*c* .385	.370	.353	.364	
May 1850	.291	.296		*c* .330	.367	.347	.334	.322	.304	.324	
1851		*o* .286	*k* .287	*c* .333	.356	.353	*c* .354	.327	.310	.326	.315
1852		*u* .267	*t* .266	.296	.319	.309	.315	.300	*c* .283	.294	
June 1850	.259	.257		.279	.301	.300	.289	.277	.266	.279	
1851		*p* .230	*q* .246	.281	.312	.315	.306	.282	.266	.280	.280
1852		*e* .253	*y* .255	.272	.304	.305	.306	.287	.271	.282	
July 1850	.247	.245		.271	.297	.290	*c* .285	.262	.254	.269	
1851			*i* .259	.284	.300	.296	*c* .286	.276	.262	.280	.269
1852		*x* .248	*q* .226	.231	.263	.277	.274	*c* .254	.249	.258	
August 1850	.267	.261		.314	.330	.330	.314	.298	.281	.298	
1851			*r* .277	*c* .315	.341	337	.325	.311	.301	.315	.298
1852		*e* .209	*q* .262	.284	.306	.307	.309	.289	*c* .272	.280	
September . . . 1850	*l* .284	.293		.336	.330	.329	.331	.311	.299	.313	
1851		*s* .291	*t* .303	.330	.348	.348	.346	.326	.306	.325	.318
1852			*b* .292	.306	.333	.344	.325	.314	.295	.316	
October 1850		.308		.355	.361	.357	.319	.318	.301	.331	.324
1851		.305	.305	.333	.327	.318	.324	.318	.308	.317	
Annual mean . . 1850		.303		.345	.360	.348	.333	.315	.309	.328	
1851				.354	.365	.354	.352	.338	.327	.342	
Mean of two years . .				.349	.362	.351	.342	.326	.318	.335	.336

a Fourteen observations.
b Thirteen observations.
c One observation omitted.
d Twenty-three observations.
e Six observations.
f Two observations omitted.
g Sixteen observations.
h Twenty-two observations.
i Four observations omitted.
k Eighteen observations.
l Seventeen observations.
m Eleven observations.
n Seven observations.
o Twelve observations.
p Four observations.
q Twenty-five observations.
r Three observations.
s Nineteen observations.
t Ten observations.
u Twenty-one observations.
v Fifteen observations.
w Twenty-six observations.
x Five observations.
y Twenty-four observations.
z Two observations.
* Rejected in mean of three years.

TABLE XXXVI.

Quarterly means of the force of the aqueous vapor at each hour of observation.

Hour.	Autumn.	Winter.	Spring.	Summer.	Annual means.
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*
3 A. M.	.293	.258	.395	.331	.319
6 A. M.	.303	.248	.330	.371	.313
7 A. M.	.322	.254	.306	.360	.311
9 A. M.	.358	.283	.368	.411	.355
Noon	.377	.308	.378	.418	.370
3 P. M.	.355	.305	.379	.397	.362
6 P. M.	.356	.299	.371	.389	.354
9 P. M.	.340	.282	.357	.389	.337
Midnight	.324	269	337	.377	.327
Daily means	.337	.278	.358	.380	.339

TABLE XXXVII.

Showing the number of days in each month during which the wind blew from each direction at the several observation hours.

1840.

Month.	3 A. M.																
	North.	N.N.E.	N.E.	E.N.E.	East.	E.S.E.	S.E.	S.S.E.	South.	S.S.W.	S.W.	W.S.W.	West.	W.N.W.	N.W	N.N.W.	Calm.
November*	1	..	..	..	1	..	..	..	2	..	1	..	2	..	1	..	3
December	4	1	1	..	..	..	3	..	3	1	3	..	3	..	5	..	7
Sums	5	1	1	..	1	..	3	..	5	1	4	..	5	..	6	..	10

Month.	6 A. M.																
	North.	N.N.E.	N.E.	E.N.E.	East.	E.S.E.	S.E.	S.S.E.	South.	S.S.W.	S.W.	W.S.W.	West.	W.N.W.	N.W.	N.N.W.	Calm.
November*	1	..	2	..	..	..	..	..	..	..	1	1	1	..	..	..	6
December	3	..	2	..	..	..	..	1	2	1	4	..	1	1	..	1	15
Sums	4	..	4	..	..	..	..	1	2	1	5	1	2	1	..	1	21

Month.	9 A. M.																
	North.	N.N.E.	N.E.	E.N.E.	East.	E.S.E.	S.E.	S.S.E.	South.	S.S.W.	S.W.	W.S.W.	West.	W.N.W.	N.W.	N.N.W.	Calm.
November*	1	1	1	..	..	..	1	..	1	..	3	..	3	..	1	..	1
December	3	..	1	..	..	..	..	..	..	3	7	..	9	..	1	..	7
Sums	4	1	2	..	..	..	1	..	1	3	10	..	12	..	2	..	8

* There were observations only on fourteen days of November.

TABLE XXXVII—Continued.

1849—Continued.

Month.	NOON.																
	North.	N.N.E.	N.E.	E.N.E.	East.	E.S.E.	S.E.	S.S.E.	South.	S.S.W.	S.W.	W.S.W.	West.	W.N.W.	N.W.	N.N.W.	Calm.
November* .	..	..	..	..	..	..	..	..	2	3	3	..	3	..	1	..	1
December . .	..	..	..	..	..	..	..	..	2	7	14	..	6	..	..	..	1
Sums . . .	..	..	..	..	..	..	..	..	4	10	17	..	9	..	1	..	2

Month.	3 P. M.																
	North.	N.N.E.	N.E.	E.N.E.	East.	E.S.E.	S.E.	S.S.E.	South.	S.S.W.	S.W.	W.S.W.	West.	W.N.W.	N.W.	N.N.W.	Calm.
November* .	..	..	..	..	1	..	..	..	3	3	2	1	3	..	1	..	..
December . .	..	..	..	..	..	..	..	2	7	5	9	1	5	..	1	..	1
Sums . . .	..	..	..	..	1	..	..	2	10	8	11	2	8	..	2	..	1

Month.	6 P. M.																
	North.	N.N.E.	N.E.	E.N.E.	East.	E.S E.	S.E.	S.S.E.	South	S.S.W.	S.W.	W S.W.	West.	W.N.W.	N.W.	N.N.W.	Calm.
November* .	..	..	..	..	..	..	..	..	4	2	5	..	2	..	..	..	1
December . .	..	..	..	..	..	..	1	..	7	5	11	..	5	..	2	..	..
Sums . . .	..	..	..	..	..	..	1	..	11	7	16	..	7	..	2	..	1

Month.	9 P. M.																
	North	N.N.E	N.E.	E.N.E.	East	E.S.E.	S.E.	S.S.E.	South.	S.S.W.	S.W.	W.S.W.	West.	W.N.W.	N.W.	N.N.W.	Calm
November* .	..	..	1	..	1	..	..	..	4	1	2	..	..	..	1	..	4
December . .	1	..	5	..	1	..	3	..	14	2	..	..	3	..	..	..	2
Sums . . .	1	..	6	..	2	..	3	..	18	3	2	..	3	..	1	..	6

Month.	MIDNIGHT.																
	North.	N.N.E.	N.E.	E.N.E.	East.	E.S.E.	S.E.	S.S.E.	South.	S.S.W.	S.W.	W.S.W.	West.	W.N.W.	N.W.	N.N.W.	Calm.
November* .	..	..	..	..	..	..	..	..	2	1	1	..	2	..	2	1	5
December . .	5	..	1	..	..	..	3	..	5	..	3	..	3	..	6	1	4
Sums . . .	5	..	1	..	..	..	3	..	7	1	4	..	5	..	8	2	9

* There were observations only on fourteen days of November.

TABLE XXXVII—Continued.

1859.

Month.	3 A. M.																
	North.	N.N.E.	N.E.	E.N E.	East.	E.S.E.	S.E.	S S.E.	South.	S.S.W.	S.W.	W.S.W.	West.	W.N.W.	N.W.	N.N.W.	Calm.
*January . .	8	..	6	..	..	..	2	..	..	..	1	..	1	..	..	..	4
†February . .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
‡March . . .	7	1	6	..	..	..	1	..	..	..	..	..	1	..	1	..	1
April . . .	3	..	9	..	4	..	2	1	1	..	1	..	..	..	5	3	1
May	3	1	5	..	8	..	1	..	2	1	1	1	..	1	3	..	4
June . . .	3	..	2	1	4	..	3	..	2	1	2	..	..	1	3	2	6
July	4	..	8	1	2	..	3	4	..	..	..	..	..	..	2	4	3
August . . .	2	..	4	1	1	1	2	3	3	1	1	..	..	1	5	..	6
‖September .	2	2	2	..	..	2	2	1	2	..	..	1	..	..	1	..	2
October . . .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
November . .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
December . .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Sums . .	32	4	42	3	19	3	16	9	10	3	6	2	2	3	20	9	27

Month.	6 A. M.																
	North.	N.N.E.	N.E.	E.N.E.	East.	E.S.E.	S.E.	S.S.E.	South.	S.S.W.	S.W.	W.S.W.	West.	W.N.W.	N.W.	N.N.W.	Calm.
January . .	5	1	6	..	..	..	..	..	1	..	2	1	1	..	1	2	9
February . .	1	2	17	1	2	..	..	..	..	..	..	..	2	..	1	1	1
March . . .	2	..	13	..	4	..	4	..	1	..	1	..	2	..	..	..	4
April . . .	2	1	10	1	1	2	2	2	2	..	..	..	1	..	2	..	4
May	2	..	6	1	2	1	3	1	..	..	1	1	..	..	1	..	12
June . . .	1	..	4	1	1	..	1	1	2	..	2	..	..	1	1	1	14
July	..	..	5	..	..	1	4	3	..	..	..	..	..	..	5	2	11
August . . .	..	..	1	1	..	1	3	2	2	..	2	..	..	..	4	..	15
September . .	1	..	8	..	1	..	4	2	..	2	3	..	..	..	4	..	5
October . . .	1	..	5	..	..	1	..	1	2	..	2	2	1	..	..	..	15
November . .	2	..	4	..	..	..	1	..	3	..	2	..	1	..	1	..	14
December . .	..	..	5	..	..	..	..	..	3	..	2	..	..	..	1	..	20
Sums . .	17	4	84	5	11	6	22	12	16	2	17	4	8	1	21	6	124

* Nine days of January not observed.

† But one day in February observed.

‡ Thirteen days of March not observed, of which twelve were consecutive days.

‖ 17th of September closes the observations at this hour.

TABLE XXXVII—Continued.

1850.

Month.	9 A. M.																
	North.	N.N.E.	N.E.	E.N.E.	East.	E.S.E.	S.E.	S.S.E.	South.	S.S.W.	S.W.	W.S.W.	West.	W.N.W.	N.W.	N.N.W.	Calm.
January . . .	5	1	4	..	..	..	2	1	1	2	5	1	1	1	4	..	3
February . .	..	1	9	..	..	..	..	..	..	..	4	2	7	..	4	1	..
March . . .	2	..	9	..	2	..	4	3	3	..	5	..	2	..	..	..	1
April . . .	2	2	5	1	2	..	3	3	4	..	..	..	2	..	4	1	1
May	1	..	9	..	3	1	2	1	5	..	2	..	..	..	3	..	3
June . . .	5	..	6	..	1	..	2	..	3	..	1	..	..	..	3	2	7
July	2	3	1	..	..	..	3	2	..	2	4	..	2	1	1	1	9
August . . .	1	..	2	1	1	1	1	4	4	..	1	1	..	1	6	..	7
September . .	..	..	7	..	..	1	3	2	1	2	7	..	..	1	2	1	3
October . .	1	1	3	..	..	..	1	..	2	1	3	1	7	2	1	..	6
November . .	1	..	5	..	..	1	..	..	4	..	5	4	4	..	2	..	4
December . .	1	..	4	..	1	..	..	..	1	..	10	..	..	..	..	..	14
Sums . . .	21	8	64	2	10	4	21	16	28	7	47	9	25	6	30	6	60

Month.	NOON.																
	North.	N.N.E.	N.E.	E.N.E.	East.	E.S.E.	S.E.	S.S.E.	South.	S.S.W.	S.W.	W.S.W.	West.	W.N.W.	N.W.	N.N.W.	Calm.
January . . .	..	..	1	..	..	..	3	..	1	2	6	3	5	1	5	1	1
February . .	..	..	1	..	5	..	..	..	..	..	7	8	4	1	2	..	..
March . . .	..	..	2	..	1	..	2	1	5	1	13	3	3	..	..	..	..
April . . .	1	..	3	.	3	1	1	2	6	1	7	..	2	..	..	..	1
May	2	..	..	..	3	..	2	..	4	3	7	1	1	1	1	..	6
June	2	1	4	..	..	..	2	..	3	2	3	..	..	1	3	1	8
July	..	..	..	..	2	..	3	..	..	1	6	..	..	1	3	1	14
August . . .	1	..	1	1	1	1	1	2	..	1	7	1	..	1	2	..	11
September . .	..	..	1	..	..	2	..	..	1	1	13	2	..	1	4	..	4
October . . .	..	..	..	..	..	..	1	1	1	1	10	8	3	2	2	1	1
November . .	..	..	1	..	..	..	1	..	3	..	12	9	1	..	1	..	2
December . .	..	..	..	..	..	..	..	..	1	1	24	2	..	..	..	..	3
Sums . . .	6	1	14	1	15	4	16	6	27	14	117	37	19	9	23	4	51

Month.	3 P. M.																
	North.	N.N.E.	N.E.	E.N.E.	East.	E.S.E.	S.E.	S.S.E.	South.	S.S.W.	S.W.	W.S.W.	West.	W.N.W.	N.W.	N.N.W.	Calm.
January . .	..	..	..	..	..	..	1	..	2	4	10	5	4	3	1	1	..
February . .	..	..	..	..	..	..	..	..	..	1	10	6	11	..	..	..	..
March . . .	..	..	..	..	1	..	1	..	3	4	17	1	4	..	..	..	..
April . . .	1	1	..	..	1	..	5	..	8	4	7	..	3	..	..	..	..
May	..	..	1	..	1	..	2	2	5	..	16	..	1	1	..	..	2
June . . .	4	..	3	..	1	..	2	1	5	..	4	..	1	..	2	1	6
July	1	1	1	..	1	1	2	1	2	1	8	..	..	..	1	6	5
August . . .	..	..	1	1	..	..	..	2	3	2	9	2	2	..	1	..	8
September . .	..	..	2	..	..	1	1	1	4	3	13	1	1	..	..	..	2
October . . .	..	..	..	..	..	..	..	..	..	6	15	8	1	1	..	..	..
November . .	..	..	2	..	..	..	3	..	1	1	13	7	1	..	1	..	1
December . .	..	..	1	..	..	..	..	..	..	..	27	2	1	..	..	..	..
Sums . . .	6	2	11	1	5	2	17	7	33	26	149	32	30	5	6	8	24

TABLE XXXVII--Continued.

1850.

Month.	6 P. M.																
	North.	N.N.E.	N.E.	E.N.E.	East.	E.S.E.	S.E.	S.S.E.	South.	S.S.W.	S.W.	W.S.W.	West.	W.N.W.	N.W.	N.N.W.	Calm.
January . .	..	..	..	..	..	..	1	..	2	3	12	7	5	1	..	..	..
February . .	..	..	..	..	..	..	..	..	..	..	9	16	3	..	..	..	..
March . . .	..	..	..	..	2	1	..	..	8	6	11	1	2	..	..	..	..
April . . .	..	..	1	..	1	..	5	1	11	2	5	..	..	..	..	..	4
May	..	1	4	..	3	..	4	1	2	1	2	..	..	..	1	1	11
June . . .	3	4	5	1	1	..	2	..	2	2	1	..	1	1	1	..	6
July	3	1	4	1	3	1	2	3	..	3	2	..	1	..	3	..	3
August . . .	..	1	..	..	..	..	3	6	4	3	5	1	..	1	2	1	4
September . .	..	..	1	..	1	..	..	3	5	3	16	1	..	..	..	..	..
October . . .	..	..	1	.	..	..	1	1	1	5	13	7	..	1	..	..	1
November . .	..	..	..	..	1	..	..	..	..	2	18	6	1	..	..	..	1
December . .	..	..	..	..	..	..	..	..	..	2	22	4	1	..	..	..	2
Sums . . .	6	7	16	2	12	2	18	15	35	32	116	43	14	4	7	2	32

Month.	9 P. M.																
	North.	N.N.E.	N.E.	E.N.E.	East.	E.S.E.	S.E.	S.S.E.	South.	S.S.W.	S.W.	W.S.W.	West.	W.N.W.	N.W.	N.N.W.	Calm.
January . .	..	1	5	..	2	..	1	..	6	1	7	1	1	..	1	..	1
February . .	..	..	10	1	4	..	2	..	1	..	4	1	2	..	2	..	1
March . . .	1	1	6	..	4	..	1	3	6	1	2	1	..	..	1	..	3
April . . .	4	1	1	1	2	1	4	1	7	..	1	..	..	..	2	..	5
May	4	..	5	..	4	..	1	1	1	..	3	..	..	..	3	1	8
June	3	..	6	..	8	1	..	..	1	..	..	..	1	1	1	..	8
July	1	2	11	2	1	1	..	3	1	..	..	..	..	..	1	1	7
August . . .	3	..	6	..	2	..	..	..	3	3	3	..	..	1	1	..	9
September . .	..	..	4	3	1	1	..	4	1	2	4	1	..	..	2	..	7
October . . .	1	2	3	..	..	..	3	..	4	1	5	3	3	..	..	..	4
November . .	..	..	3	..	1	..	3	..	4	2	11	3	1	..	..	..	2
December . .	..	..	1	..	8	..	..	..	6	2	4	..	2	..	1	..	6
Sums . . .	17	7	61	7	37	4	15	12	41	12	44	10	10	2	15	2	61

Month.	MIDNIGHT.																
	North.	N.N.E.	N.E.	E.N.E.	East.	E.S.E.	S.E.	S.S.E.	South.	S.S.W.	S.W.	W.S.W.	West	W.N.W.	N.W.	N.N.W.	Calm.
January . . .	6	..	4	..	1	..	2	1	1	1	..	1	3	2	3	1	5
February . .	5	..	8	1	2	..	1	..	1	..	1	1	..	..	3	2	3
March . . .	13	..	5	..	..	..	2	1	..	..	..	..	1	..	7	..	1
April . . .	1	..	11	2	5	..	3	1	..	..	..	..	..	..	4	1	2
May	4	1	10	1	1	..	2	..	1	..	2	..	1	..	2	1	5
June	4	2	5	2	3	..	1	..	2	..	1	..	1	..	1	..	8
July	2	..	6	..	1	1	1	4	..	1	..	..	1	1	2	3	8
August . . .	2	..	5	1	..	2	1	2	1	1	1	..	1	1	2	2	9
September . .	4	..	7	2	1	..	..	3	2	1	1	1	4	..	2	..	2
October . . .	2	2	4	..	..	..	2	..	..	1	2	3	..	2	5	..	6
November . .	1	1	3	..	1	..	5	1	..	..	3	2	1	..	7	..	5
December . .	..	..	3	..	3	..	4	1	1	..	2	..	3	..	5	..	9
Sums . . .	44	6	71	9	18	3	24	14	9	5	13	8	16	6	43	10	63

TABLE XXXVII—Continued.

1851.

Month.	*6 A. M.																
	North.	N.N.E.	N.E.	E.N.E.	East.	E.S.E.	S.E.	S.S.E.	South.	S.S.W.	S.W.	W.S.W.	West.	W.N.W.	N.W.	N.N.W.	Calm.
January . . .	..	1	5	..	..	..	.	..	1	..	..	..	..	..	..	..	23
February . .	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	26
†March . . .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5
‡April . . .	..	..	5	..	1	..	..	..	1	..	1	..	..	..	..	..	3
May	1	..	1	..	1	..	..	..	2	..	1	1	..	..	1	..	4
June	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	3
July	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
August . . .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
September . .	..	..	..	..	2	..	..	..	..	..	..	..	..	1	4	..	19
October . .	..	..	1	..	1	..	1	..	..	..	1	1	..	..	6	..	11
November . .	..	..	4	..	1	1	1	..	1	..	1	..	3	..	3	..	8
December . .	..	..	1	..	..	..	..	..	..	..	2	..	1	..	6	..	3
Sums . .	1	1	18	..	6	1	2	1	5	..	6	2	4	1	21	..	98

Month.	*7 A. M.																
	North.	N.N.E.	N.E.	E.N.E.	East.	E.S.E.	S.E.	S.S.E.	South.	S.S.W.	S.W.	W.S.W.	West.	W.N.W.	N.W.	N.N.W.	Calm.
January . . .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
February . .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
March . . .	..	..	..	..	..	..	..	..	..	..	.	..	..	..	..	..	..
‡April . . .	..	..	2	..	..	..	..	..	..	..	1	..	..	..	..	..	4
May	..	..	3	..	..	..	1	..	1	..	1	..	..	..	1	..	11
June	..	..	6	..	..	..	..	..	..	..	2	..	1	..	1	..	15
July	..	..	2	..	..	..	2	..	..	..	..	..	..	..	2	..	17
August . . .	2	..	3	..	1	..	2	1	1	..	2	..	..	..	2	..	17
September . .	..	..	..	..	..	..	2	..	..	..	3	..	..	1	2	..	2
October . . .	..	..	3	..	..	..	..	..	..	..	1	..	..	..	..	..	2
November . .	..	..	2	..	..	..	1	..	..	..	..	..	1	..	1	..	1
December . .	..	..	4	..	1	..	..	..	1	..	..	2	2	..	..	1	5
Sums . .	2	..	25	..	2	..	8	1	3	..	10	2	4	1	16	1	74

* During the year 1851 the observations were made irregularly at the hours of 6 and 7 A. M.

† Observed at this hour only during the first five days.
‡ Eleven days of April were observed at 6, and seven at 7 A. M.

TABLE XXXVII—Continued.

1851.

Month.	9 A. M.																
	North.	N.N.E.	N.E.	E.N.E.	East.	E.S.E.	S.E.	S.S.E.	South.	S.S.W.	S.W.	W.S.W.	West.	W.N.W.	N.W.	N.N.W.	Calm.
January . .	..	..	1	..	..	..	..	..	1	..	11	..	1	..	..	..	17
February . .	..	..	2	..	..	..	..	..	1	..	12	..	..	..	1	..	12
March . . .	5	1	2	..	..	1	1	..	1	..	4	6	1	2	1	3	3
April . . .	1	1	5	..	..	..	2	1	7	..	4	..	1	..	3	1	4
May	1	..	3	..	1	..	1	..	1	..	2	..	5	1	4	..	11
June . . .	..	..	3	..	..	..	1	..	1	..	5	..	..	..	6	..	14
July	1	..	2	1	..	..	3	..	1	..	2	..	1	..	5	1	14
August . . .	..	..	5	..	..	..	1	..	..	1	4	1	3	..	3	..	13
September . .	..	..	3	..	1	..	3	..	1	..	5	2	4	..	4	..	7
October . . .	..	..	4	..	..	..	2	..	1	..	10	..	1	5	6	..	2
November . .	1	..	..	..	..	1	4	..	..	..	12	3	3	1	1	..	4
December . .	..	..	6	..	1	..	1	1	..	1	16	1	2	..	..	..	2
Sums . . .	9	2	36	1	3	2	19	2	15	2	87	13	22	9	34	5	103

Month.	NOON.																
	North.	N.N.E.	N.E.	E.N.E.	East.	E.S.E.	S.E.	S.S.E.	South.	S.S.W.	S.W.	W.S.W.	West.	W.N.W.	N.W.	N.N.W.	Calm.
January . .	..	..	..	..	..	..	..	..	..	1	28	1	..	..	1	..	..
February . .	..	..	2	..	..	..	..	..	..	..	24	..	..	..	..	..	2
March . . .	..	1	1	..	..	..	3	..	2	..	14	7	1	..	..	1	1
April . . .	1	..	1	..	1	..	1	..	1	..	17	1	1	..	1	..	4
May	..	..	1	..	2	..	1	..	1	..	4	..	6	..	3	2	11
June	..	..	2	..	2	..	..	1	..	..	10	..	2	..	2	..	11
July	2	..	3	..	1	..	1	1	1	..	4	..	1	..	6	..	11
August . . .	..	..	1	..	..	..	1	..	..	..	7	2	4	2	3	..	11
September . .	..	..	1	..	2	1	2	..	2	1	8	2	6	..	1	..	4
October . . .	..	..	1	..	1	..	6	..	..	2	14	2	1	2	..	..	2
November . .	..	..	1	1	..	1	4	..	1	..	18	2	1	..	..	..	1
December . .	..	..	1	..	..	..	1	1	..	..	27	1	..	..	..	..	..
Sums . . .	3	1	15	1	9	2	20	3	8	4	175	18	23	4	17	3	58

Month.	3 P. M.																
	North.	N.N.E.	N.E.	E.N.E.	East.	E.S.E.	S.E.	S.S.E.	South.	S.S.W.	S.W.	W.S.W.	West.	W.N.W.	N.W.	N.N.W.	Calm.
January . . .	..	..	..	..	..	..	..	..	..	..	26	4	1	..	..	..	..
February . .	..	..	..	..	..	..	..	..	..	..	24	2	..	..	1	..	1
March . . .	..	..	..	..	..	..	..	..	1	1	20	6	1	1	..	..	1
April . . .	..	..	..	..	..	..	..	..	1	..	20	2	2	..	1	..	3
May	..	..	1	..	..	..	2	1	3	1	11	2	3	..	..	..	7
June	..	..	..	..	2	..	1	..	4	..	19	1	1	..	1	..	10
July	1	..	2	..	2	..	1	..	1	..	5	1	1	..	3	1	13
August . . .	..	..	2	..	..	..	1	..	.	..	13	1	4	..	1	..	9
September . .	..	..	1	..	1	1	1	..	3	2	17	..	1	..	1	..	2
October . . .	..	..	..	2	..	..	1	..	..	2	21	1	..	2	1	..	1
November . .	..	..	..	..	..	..	1	2	..	1	22	3	..	..	..	..	..
December . .	..	..	..	..	..	..	..	..	..	..	28	3	..	..	..	..	..
Sums . . .	1	..	6	2	5	1	8	3	13	7	217	26	14	3	9	1	47

TABLE XXXVII—Continued.

1851.

Month.	6 P. M.																
	North.	N.N.E.	N.E.	E.N.E.	East.	E.S.E.	S.E.	S.S.E.	South.	S.S.W.	S.W.	W.S.W.	West.	W.N.W.	N.W.	N.N.W.	Calm.
January . . .	..	..	..	..	..	..	..	..	..	..	26	4	1	..	..	..	..
February . .	..	..	..	..	..	..	..	..	1	1	22	1	1	..	1	..	1
March . . .	..	..	..	1	..	..	1	..	..	1	13	10	1	..	2	..	2
April . . .	..	..	..	..	1	..	..	..	5	2	13	1	..	..	..	..	7
May	..	..	5	..	6	..	1	..	2	1	1	..	2	..	1	..	11
June . . .	..	..	10	..	1	..	2	..	2	..	2	..	2	..	1	..	10
July	..	..	9	..	..	..	1	..	2	1	1	..	3	..	2	..	11
August . . .	..	..	11	..	1	..	1	2	4	3	4	1	..	..	..	..	4
September . .	..	..	..	..	2	..	3	..	5	5	10	1	..	1	1	..	2
October . . .	..	..	1	..	..	..	4	1	3	..	18	2	2	..	..	..	..
November . .	..	..	..	..	..	..	1	..	..	..	25	2	1	..	..	..	..
December . .	..	..	..	..	..	..	..	..	..	3	24	3	..	..	..	..	1
Sums . . .	..	..	36	1	11	..	14	3	24	17	159	25	13	1	8	..	49

Month.	9 P. M.																
	North.	N.N.E.	N.E.	E.N.E.	East.	E.S.E.	S.E.	S.S.E.	South.	S.S.W.	S.W.	W.S.W.	West.	W.N.W.	N.W.	N.N.W.	Calm.
January . . .	..	..	..	..	8	2	1	..	5	1	6	..	2	..	..	..	6
February . .	..	..	4	..	4	..	1	..	1	..	6	1	2	..	1	..	8
March . . .	1	..	5	1	..	..	4	..	5	1	4	3	1	..	..	..	6
April . . .	2	..	9	..	..	..	1	..	2	..	4	2	1	1	1	..	7
May	2	..	7	..	3	1	..	..	1	..	1	1	1	..	5	1	8
June	..	..	15	..	1	..	..	..	1	..	..	..	2	..	1	..	10
July	1	..	15	..	..	.	1	..	3	..	..	..	1	..	4	..	6
August . . .	1	..	14	..	5	..	..	..	1	1	1	..	..	..	1	..	6
September . .	..	..	7	..	2	..	2	..	..	..	3	..	1	..	2	..	12
October . . .	1	..	6	3	4	..	..	..	..	..	3	1	1	..	2	..	10
November . .	..	..	6	..	3	1	1	..	1	..	6	1	1	..	1	..	7
December . .	..	..	8	3	..	2	..	..	1	1	6	..	..	1	3	..	6
Sums . . .	8	..	96	7	30	6	11	..	21	4	40	9	13	2	21	1	92

Month.	MIDNIGHT.																
	North.	N.N.E.	N.E.	E.N.E.	East.	E.S.E.	S.E.	S.S.E.	South.	S.S.W.	S.W.	W.S.W.	West.	W.N.W.	N.W.	N.N.W.	Calm.
January . . .	1	..	2	..	6	1	2	..	1	1	2	..	1	1	4	1	6
February . .	3	..	5	..	3	..	1	..	1	..	1	..	1	..	2	2	9
March . . .	1	..	6	1	3	..	4	..	1	..	..	..	1	1	5	4	4
April . . .	1	1	11	..	1	..	2	1	5	..	3	..	..	..	1	..	4
May	5	..	11	.	3	1	..	..	1	..	1	..	..	..	4	..	3
June	..	..	9	..	3	1	2	..	2	..	1	..	..	..	2	..	10
July	..	1	15	..	1	..	1	..	1	..	2	..	..	..	5	..	5
August . . .	4	..	13	..	2	..	..	..	2	1	1	..	1	..	5	..	2
September . .	..	..	12	..	1	..	..	..	1	..	1	..	..	1	8	..	6
October . . .	4	..	9	..	..	..	..	1	1	..	3	..	..	..	7	1	5
November . .	..	1	4	..	2	..	..	1	1	..	1	..	1	..	7	3	8
December . .	..	1	7	..	..	..	2	1	..	1	2	..	2	..	6	3	6
Sums . . .	19	4	104	1	25	3	14	4	17	3	18	..	7	3	56	14	70

TABLE XXXVII—Continued.

1852.

Month.	*6 A. M.																
	North	N.N.E.	N.E.	E.N.E.	East.	E.S.E.	S.E.	S.S.E.	South.	S.S.W.	S.W.	W.S.W.	West.	W.N.W.	N.W.	N.N.W.	Calm.
January . . .	1	..	..	..	..	..	..	..	..	..	1	2	1	1	..	..	6
February . .	1	..	3	..	4	1	1	..	..	..	..	..	1	..	2	..	14
March . . .	..	..	6	..	2	..	2	..	1	1	1	..	..	2	..	1	10
April . . .	1	..	9	..	3	..	..	..	..	..	..	..	..	..	..	1	5
May	2	..	6	..	..	1	1	..	..	..	..	..	..	..	4	..	7
June	..	..	2	..	..	..	..	..	..	..	..	..	..	..	2	..	2
July	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
August . . .	1	1	1	..	1	..	2	..	..	..	..	..	1	..	..	..	..
September . .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Sums . .	6	1	27	..	10	2	6	..	1	1	2	2	3	3	8	2	44

Month.	*7 A. M.																
	North.	N.N.E.	N.E.	E.N.E.	East.	E.S.E.	S.E.	S.S.E.	South.	S.S.W.	S.W.	W.S.W.	West.	W.N.W.	N.W.	N.N.W.	Calm.
January . . .	..	1	4	..	..	..	..	..	..	..	3	1	3	..	..	..	3
February . .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
March . . .	..	..	1	..	..	..	1	..	..	..	..	..	..	..	2	..	1
April . . .	..	..	3	..	..	1	2	..	..	..	2	..	1	..	..	..	2
May	..	..	1	..	..	1	1	..	..	..	..	..	..	..	1	1	5
June . . .	1	..	5	..	2	..	..	1	1	..	2	..	1	..	5	1	5
July	..	1	7	..	7	1	2	3	..	..	..	..	..	..	2	1	3
August . . .	..	..	7	..	5	..	2	..	..	1	1	..	..	..	4	..	4
September .	..	..	2	..	1	..	..	..	..	1	1	1	..	..	3	..	4
Sums . .	1	2	30	..	15	3	8	4	1	2	9	2	5	..	17	3	27

Month.	9 A. M.																
	North.	N.N.E.	N.E.	E.N.E.	East.	E.S.E.	S.E.	S.S.E.	South.	S.S.W.	S.W.	W.S.W.	West.	W.N.W.	N.W.	N.N.W.	Calm.
January . . .	..	..	4	..	..	..	1	1	..	..	19	2	1	..	..	..	3
February . .	1	1	1	..	1	2	1	2	..	..	7	2	2	3	4	..	2
March . . .	1	..	2	2	..	..	1	1	2	..	10	1	4	2	2	..	3
April . . .	2	..	7	..	1	..	..	..	3	..	9	1	..	..	1	..	6
May	..	..	5	..	2	..	1	1	..	..	1	..	..	1	4	..	16
June . . .	..	..	4	1	4	..	3	1	2	1	3	..	3	..	6	..	2
July	2	..	4	1	..	..	3	1	3	..	1	..	2	..	9	..	5
August . . .	1	..	5	..	..	..	1	1	2	..	7	2	2	1	4	..	5
September . .	..	..	2	..	..	..	..	..	1	1	2	1	..	..	3	..	3
Sums . . .	7	1	34	4	8	2	11	8	13	2	59	9	14	7	33	..	45

* During the year 1852 the observations were made irregularly at the hours of 6 and 7 A. M.

TABLE XXXVII—Continued.

1852.

Month.	NOON.																
	North.	N.N.E.	N.E.	E.N.E.	East.	E.S.E.	S.E.	S.S.E.	South.	S.S.W.	S.W.	W.S.W.	West.	W.N.W.	N.W.	N.N.W.	Calm.
January . . .	..	..	..	..	..	..	..	1	1	2	22	4	1	..	..	..	..
February . .	..	..	1	..	..	..	..	2	1	..	20	4	1	..	..	..	..
March . . .	..	..	..	..	1	2	1	2	1	..	17	5	1	1	..	..	..
April . . .	..	..	1	..	..	..	..	..	1	..	22	..	1	..	..	..	5
May	..	..	3	..	..	..	..	..	2	..	12	1	2	..	6	..	5
June	..	..	1	..	1	..	..	..	2	..	13	..	2	..	7	1	3
July	..	..	3	..	..	..	1	..	2	..	8	..	4	..	11	..	2
August . . .	1	..	..	..	1	..	1	..	4	..	14	2	2	1	4	..	1
September . .	..	..	..	1	..	..	2	..	..	..	7	..	1	..	1	..	1
Sums . . .	1	..	9	1	3	2	5	5	14	2	135	16	15	2	29	1	17

Month.	3 P. M.																
	North.	N.N.E.	N.E.	E.N.E.	East.	E.S.E.	S.E.	S.S.E.	South.	S.S.W.	S.W.	W.S.W.	West.	W.N.W.	N.W.	N.N.W.	Calm.
January . . .	..	..	..	..	..	..	..	..	..	2	22	5	1	..	..	..	..
February . .	..	..	..	..	..	..	..	..	..	1	22	6	..	..	..	..	..
March . . .	..	..	..	..	..	..	..	1	2	2	24	2	..	..	..	..	..
April . . .	..	..	..	..	1	..	1	..	1	..	25	1	..	..	..	..	1
May	..	1	1	1	3	..	..	..	1	..	16	2	..	..	3	..	3
June	..	..	2	..	1	..	1	..	1	1	13	3	3	1	2	..	2
July	..	..	1	..	5	1	4	1	2	..	11	1	1	..	3	..	1
August . . .	..	..	1	..	..	1	1	1	..	3	16	3	2	..	1	..	2
September . .	..	..	..	..	..	..	..	1	..	..	9	2	..	..	..	..	1
Sums . . .	..	1	5	1	10	2	7	4	7	9	158	25	7	1	9	..	10

Month.	6 P. M.																
	North.	N.N.E.	N.E.	E.N.E.	East.	E.S.E.	S.E.	S.S.E.	South.	S.S.W.	S.W.	W.S.W.	West.	W.N.W.	N.W.	N.N.W.	Calm.
January . . .	..	..	..	..	..	..	..	..	..	1	26	1	1	..	..	..	..
February . .	..	..	..	..	..	..	..	..	1	..	20	6	2	..	..	..	..
March . . .	..	..	..	..	..	1	1	..	2	2	21	1	1	..	..	..	2
April . . .	..	.	1	..	3	..	1	..	3	..	15	..	..	..	..	..	6
May	..	..	5	..	6	1	6	1	3	..	1	..	..	1	2	..	5
June	..	..	9	..	2	..	2	1	3	2	1	1	1	..	3	1	4
July	..	..	13	2	1	..	1	2	1	..	1	..	1	..	2	..	7
August . . .	..	..	14	1	1	..	..	..	1	2	3	1	1	..	3	..	4
September . .	..	..	2	..	..	..	2	1	1	2	2	1	..	..	1	..	1
Sums . . .	..	..	44	3	13	2	13	5	15	9	90	11	7	1	11	1	29

TABLE XXXVII—Continued.

1852.

Month.	9 P. M.																
	North.	N.N.E.	N.E.	E.N.E.	East.	E.S.E.	S.E.	S.S.E.	South.	S.S.W.	S.W.	W.S.W.	West.	W.N.W.	N.W.	N.N.W.	Calm.
January . . .	..	..	7	..	5	3	..	1	2	..	3	..	..	2	1	..	7
February . .	..	..	7	1	1	2	3	1	2	..	3	1	..	..	4	..	4
March . . .	..	..	11	..	1	..	1	2	..	1	5	..	..	3	..	2	5
April . . .	1	..	11	..	2	1	2	..	1	..	..	..	1	..	5	..	6
May	..	1	13	1	3	..	..	1	3	..	1	..	..	1	..	..	7
June	..	..	10	..	4	..	..	..	1	1	..	..	..	..	5	1	8
July	..	..	17	..	1	2	..	..	1	..	1	..	..	..	3	..	5
August . . .	..	..	10	1	2	1	1	2	1	..	1	..	2	..	4	..	5
September . .	..	1	4	1	..	..	..	..	..	..	3	..	..	..	2	..	2
Sums . . .	1	2	90	4	19	9	7	7	11	2	17	1	3	6	24	3	49

Month.	MIDNIGHT.																
	North.	N.N.E.	N.E.	E.N.E.	East.	E.S.E.	S.E.	S.S.E.	South.	S.S.W.	S.W.	W.S.W.	West.	W.N.W.	N.W.	N.N.W.	Calm.
January . . .	..	..	7	..	..	..	1	..	..	..	1	..	1	2	5	2	12
February . .	..	..	5	1	3	2	..	..	..	1	2	1	..	1	2	1	3
March . . .	3	1	6	..	..	..	..	..	..	1	..	..	1	..	5	4	2
April . . .	4	..	2	..	2	..	1	..	1	..	1	..	..	..	2	1	2
May	1	..	14	..	1	..	1	..	1	1	..	..	1	..	6	..	4
June	1	1	17	1	..	..	..	..	1	..	1	..	..	..	2	..	6
July	1	1	10	..	3	..	1	..	3	..	1	1	..	..	4	3	3
August . . .	..	..	14	..	2	..	2	..	2	1	1	..	..	..	6	..	3
September . .	..	..	4	1	2	..	..	..	..	..	2	..	..	..	1	..	3
Sums . . .	10	3	86	3	13	2	6	..	8	4	9	2	3	3	40	11	52

In preparing Table XXXVIII, as observations were made only on 45 days of 1849 and 256 days of 1852, a *proportional* number was added to the *sum* of the numbers in the columns opposite each hour (except 3 A. M.) for the 34 months, to complete 36 months, and $\frac{1}{3}$ of the sum thus found is placed opposite in *column* means.

To render the annual means of each year comparable, the sums of the numbers for each direction in column 1849 (except for 3 A. M.) were multiplied by 8, the products divided by 7, and the resulting quotients are placed in *lines* annual *means*. So also the sums of the *corresponding* numbers, in column 1852, were increased by $\frac{3}{16}$ of each, the resulting numbers divided by 7, and the quotients placed in lines *means*.

TABLE XXXVIII.

Showing, at each observation hour in the several years, the number of winds prevailing from each direction, and the annual means of the same.

Wind.		1849.	1850.	1851.	1852.	Means.
North	3 A. M.*	5	32	..	..	....
	6 A. M.†	4	17	3	7	10.9
	9 A. M.	4	21	9	7	14.5
	Noon	..	6	3	1	3.5
	3 P. M.	..	6	1	..	2.5
	6 P. M.	..	6	..	..	2.1
	9 P. M.	1	17	8	1	9.5
	Midnight	5	44	19	10	27.5
Means		16	16.7	6.1	5.3	10.1
N.N.E.	3 A. M.*	1	4	..	..	....
	6 A. M.†	..	4	1	3	2.8
	9 A. M.	1	8	2	1	4.2
	Noon	..	1	1	..	0.7
	3 P. M.	..	2	..	1	1.1
	6 P. M.	..	7	..	..	2.5
	9 P. M.	..	7	..	2	3.2
	Midnight	..	6	4	3	4.6
Means		1.1	5.0	1.1	2.0	2.7
N.E.	3 A. M.*	1	42	..	..	....
	6 A. M.†	4	84	43	57	66.4
	9 A. M.	2	64	36	34	48.0
	Noon	..	14	15	9	13.4
	3 P. M.	..	11	6	5	7.8
	6 P. M.	..	16	36	44	33.9
	9 P. M.	6	61	96	90	89.3
	Midnight	1	71	104	86	92.5
Means		14.9	45.4	48.0	66.3	50.2

* Observations were made at 3 A. M. only during parts of two years, and therefore they were omitted from the means in the above table.

† During the years 1851 and 1852 the observations were made irregularly at the hours of 6 and 7 A. M.; in preparing this table the observations at those two hours are combined under heading 6 A. M.

TABLE XXXVIII—Continued.

Wind.		1849.	1850.	1851.	1852.	Means.
E.N.E.	3 A. M.*	..	3	..	..	....
	6 A. M.†	..	5	..	..	1.8
	9 A. M.	..	2	1	4	2.5
	Noon	..	1	1	1	1.1
	3 P. M.	..	1	2	1	1.4
	6 P. M.	..	2	1	3	2.1
	9 P. M.	..	7	7	4	6.4
	Midnight	..	9	1	3	4.6
Means		..	3.9	1.9	3.3	2.8
East	3 A. M.*	1	19	..	..	....
	6 A. M.†	..	11	8	5	8.5
	9 A. M.	..	10	3	2	5.3
	Noon	..	15	9	2	9.2
	3 P. M.	1	5	5	2	4.6
	6 P. M.	..	12	11	2	8.8
	9 P. M.	2	37	30	9	27.5
	Midnight	..	18	25	2	15.9
Means		3.4	15.4	13.0	4.9	11.4
E.S.E.	3 A. M.*	..	3	..	..	....
	6 A. M.†	..	6	1	5	4.2
	9 A. M.	..	4	2	2	2.8
	Noon	.	4	2	2	2.8
	3 P. M.	..	2	1	2	5.3
	6 P. M.	..	2	..	2	1.4
	9 P. M.	..	4	6	9	6.7
	Midnight	..	3	3	2	2.8
Means		..	3.6	2.1	4.9	3.7
S.E.	3 A. M.*	3	16	..	..	....
	6 A. M.†	..	22	10	14	16.2
	9 A. M.	1	21	19	11	18.4
	Noon	..	16	20	5	14.5
	3 P. M.	..	17	8	7	11.3
	6 P. M.	1	18	14	13	16.2
	9 P. M.	3	15	11	7	12.7
	Midnight	3	24	14	6	16.6
Means		9.1	19.0	13.7	12.9	15.1
S.S.E.	3 A. M.*	..	9	..	..	....
	6 A. M.†	1	12	8	2	8.1
	9 A. M.	..	16	15	13	15.5
	Noon	..	6	8	14	9.9
	3 P. M.	2	7	13	7	10.2
	6 P. M.	..	15	24	15	19.1
	9 P. M.	..	12	21	11	15.5
	Midnight	..	14	17	8	13.8
Means		3.4	11.7	15.1	14.3	13.2

* Observations were made at 3 A. M. only during parts of two years, and therefore they were omitted from the means in the above table.

† During the years 1851 and 1852 the observations were made irregularly at the hours of 6 and 7 A. M.; in preparing this table the observations at those two hours are combined under heading 6 A. M.

TABLE XXXVIII—Continued.

Wind.		1849.	1850.	1851.	1852.	Means.
South	3 A. M.*	5	10	..	..	....
	6 A. M.†	2	16	8	2	9.9
	9 A. M.	1	28	15	13	20.1
	Noon	4	27	8	14	18.7
	3 P. M.	10	33	13	7	22.2
	6 P. M.	11	35	24	15	30.0
	9 P. M.	18	41	21	11	32.1
	Midnight	7	9	17	8	14.5
Means		60.6	27.0	15.1	14.3	21.1
S.S.W.	3 A. M.*	1	3	..	..	....
	6 A. M.†	1	2	..	3	2.1
	9 A. M.	3	7	2	2	4.9
	Noon	10	14	4	2	10.6
	3 P. M.	8	26	7	9	17.6
	6 P. M.	7	32	17	9	22.9
	9 P. M.	3	12	4	2	7.4
	Midnight	1	5	3	4	4.6
Means		37.7	14.0	5.3	6.3	10.0
S.W.	3 A. M.*	4	6	..	..	....
	6 A. M.†	5	17	16	11	17.3
	9 A. M.	10	47	87	59	71.6
	Noon	17	117	175	135	156.7
	3 P. M.	11	149	217	158	188.8
	6 P. M.	16	116	159	90	134.5
	9 P. M.	2	44	40	17	36.4
	Midnight	4	13	18	9	15.5
Means		74.3	71.9	101.7	97.8	88.7
W.S.W.	3 A. M.*	..	2	..	..	....
	6 A. M.†	1	4	4	4	4.6
	9 A. M.	..	9	13	9	10.9
	Noon	..	37	18	16	25.1
	3 P. M.	2	32	26	25	30.0
	6 P. M.	..	43	25	11	27.9
	9 P. M.	..	10	9	1	7.1
	Midnight	..	8	..	2	3.5
Means		3.4	20.4	13.6	13.9	15.6
West	3 A. M.*	5	2	..	..	....
	6 A. M.†	2	8	8	8	9.2
	9 A. M.	12	25	22	14	25.8
	Noon	9	19	23	15	23.3
	3 P. M.	8	30	14	7	20.8
	6 P. M.	7	14	13	7	14.5
	9 P. M.	3	10	13	3	10.2
	Midnight	5	16	7	3	10.9
Means		59.6	17.4	14.3	11.6	16.4

* Observations were made at 3 A. M. only during parts of two years, and therefore they were omitted from the means in the above table.

† During the years 1851 and 1852 the observations were made irregularly at the hours of 6 and 7 A. M.; in preparing this table the observations at those two hours are combined under heading 6 A. M.

TABLE XXXVIII—Continued.

Wind.		1849.	1850.	1851.	1852.	Means.
W.N.W.	3 A. M.*	..	3	..	..	....
	6 A. M.†	1	1	2	3	2.5
	9 A. M.	..	6	9	7	7.8
	Noon	..	9	4	2	5.3
	3 P. M.	..	5	3	1	3.2
	6 P. M.	..	4	1	1	2.1
	9 P. M.	..	2	2	6	3.5
	Midnight	..	6	3	3	4.2
Means		1.1	4.7	3.4	4.7	4.1
N.W.	3 A. M.*	6	20	..	..	....
	6 A. M.†	..	21	37	25	29.3
	9 A. M.	2	30	34	33	34.9
	Noon	1	23	17	29	24.7
	3 P. M.	2	6	9	9	9.2
	6 P. M.	2	7	8	11	9.9
	9 P. M.	1	15	21	24	21.5
	Midnight	8	43	56	40	51.9
Means		18.3	20.7	26.0	34.9	25.9
N.N.W.	3 A. M.*	..	9	..	..	....
	6 A. M.†	1	6	1	5	4.6
	9 A. M.	..	6	5	..	3.9
	Noon	..	4	3	1	2.8
	3 P. M.	..	8	1	..	3.2
	6 P. M.	..	2	..	1	1.1
	9 P. M.	..	2	1	3	2.1
	Midnight	2	10	14	11	13.1
Means		3.4	5.4	3.6	4.3	4.4
Calm	3 A. M.*	10	27	..	..	....
	6 A. M.†	21	124	172	71	136.9
	9 A. M.	8	60	103	45	76.2
	Noon	2	51	58	17	45.2
	3 P. M.	1	24	47	10	28.9
	6 P. M.	1	32	49	29	39.2
	9 P. M.	6	61	92	49	73.4
	Midnight	9	63	70	52	68.5
Means		54.9	59.3	84.4	55.7	66.9

* Observations were made at 3 A. M. only during parts of two years, and therefore they were omitted from the means in the above table.

† During the years 1851 and 1852 the observations were made irregularly at the hours of 6 and 7 A. M.; in preparing this table the observations at those two hours are combined under heading 6 A. M.

TABLE XXXIX.

Showing at every observation hour of the several months the mean number of days on which the wind prevailed from each direction.

Month and hour.	North.	N.N.E.	N.E.	E.N.E.	East.	E.S.E.	S.E.	S.S.E.	South.	S.S.W.	S.W.	W.S.W.	West.	W.N.W.	N.W.	N.N.W.	Calm.
JANUARY.																	
3 A. M. . . .	8.0	..	6.0	..	..	..	2.0	..	..	..	1.0	..	1.0	..	..	..	4.0
6 A. M. . . .	2 0	0.7	3.7	..	..	..	..	..	0.7	..	1.0	1.0	0.7	0.3	0.3	0.7	12.7
7 A. M. . . .	..	1.0	4.0	..	..	..	..	..	..	..	3.0	1.0	3.0	..	..	..	3.0
9 A. M. . . .	1.7	0.3	3.0	..	..	..	1.0	0.7	0.7	0.7	11.7	1.0	1.0	0.3	1.3	..	7.7
Noon . . .	..	..	0.3	..	..	..	1.0	0.3	0.7	1.7	19.3	2.7	2.0	0.3	2.0	0.3	0.3
3 P. M. . . .	..	..	..	..	..	..	0.3	..	0.7	2.0	19.3	4.7	2.0	1.0	0.3	0.3	..
6 P. M. . . .	..	..	..	..	..	..	0.3	..	0.7	1.3	21.3	4.0	2 3	0.3	..	..	..
9 P. M. . . .	..	0.3	4.0	..	5.0	1.7	0.7	0.3	4.3	0.7	5.3	0.3	1.0	0.7	0.7	..	4.7
Midnight . .	2.3	..	4.3	..	2 3	0.3	1.7	0.3	0.7	0.7	1.0	0.3	1.7	1.7	4.0	1.3	8.3
FEBRUARY.																	
3 A. M. . . .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6 A. M. . . .	0.7	0.7	7.0	0.3	2.0	0.3	0.3	..	..	..	..	..	1.0	..	1.3	0.3	13.7
7 A. M. . . .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9 A. M. . . .	0.3	0.7	4.0	..	0.3	0.7	0.3	0.7	0.3	..	7.7	1.3	3.0	1.0	3.0	0.3	5.0
Noon . . .	..	..	1.3	..	1.7	..	..	0.7	0.3	..	17.0	4.0	1.7	0.3	0.7	..	0.7
3 P. M. . . .	..	..	..	..	..	..	..	..	..	0.7	18.7	4.7	3.7	..	0.3	.	0.3
6 P. M. . . .	..	..	..	..	..	..	..	..	0.7	0 3	17.0	7.7	2.0	..	0.3	..	0.3
9 P. M. . . .	..	..	7.0	0.7	3.0	0.7	2.0	0 3	1.3	..	4.3	1.0	1.3	..	2.3	..	4.3
Midnight . .	2.7	..	6.0	0.7	2.7	0.7	0.7	..	0.7	0.3	1.3	0.7	0.3	0.3	4.7	1.7	5.0
MARCH.																	
3 A. M. . . .	7.0	1.0	6.0	..	..	..	1.0	..	..	..	..	..	1.0	..	1.0	..	1.0
6 A. M. . . .	0.7	..	6.3	..	2.0	..	2.0	..	0.7	0.3	0.7	..	0.7	0.7	..	0.3	6.3
7 A. M. . . .	..	..	1.0	..	..	..	1.0	..	..	..	..	..	..	..	2.0	..	1.0
9 A. M. . . .	2.7	0.3	4.3	0.7	0.7	0.3	2.0	1.3	2.0	..	6.3	2.3	2.3	1.3	1.0	1.0	2.3
Noon . . .	..	0.3	1.0	..	0.7	0.7	2.0	1.0	2.7	0.3	14.7	5.0	1.7	0.3	..	0.3	0.3
3 P. M. . . .	..	..	..	..	0.3	..	0.3	0.3	2.0	2.3	20.3	3.0	1.7	0.3	..	..	0.3
6 P. M. . . .	..	..	..	0.3	0.7	0.7	0.7	..	3.3	3.0	15.0	4.0	1.3	..	0.7	..	1.3
9 P. M. . . .	0.7	0.3	7.3	0.3	1.7	..	2.0	1.7	3.7	1.0	3.7	1.3	0.3	1.0	0.3	0.7	4.7
Midnight . .	5.7	0.3	5.7	0.3	1.0	..	2.0	0.3	0.3	0 3	..	..	1.0	0.3	5.7	2.7	4.7
APRIL.																	
3 A. M. . . .	3.0	..	9.0	..	4.0	..	2.0	1.0	1.0	..	1.0	..	..	..	5.0	3 0	1.0
6 A. M. . . .	1.0	0.3	8.0	0.3	1.7	0.7	0.7	0.7	1.0	..	0.3	..	0.3	..	0.7	0.3	4.0
7 A. M. . . .	..	..	2.5	..	..	0.5	1.0	..	..	..	1.5	..	0.5	..	..	..	3.0
9 A. M. . . .	1.7	1.0	5.7	0.3	1.0	..	1.7	1.3	4.7	..	4.3	0.3	1.0	..	2.7	0.7	3.7
Noon . . .	0.7	..	1.7	..	1.3	0.3	0.7	0.7	3.3	0.3	15.3	0.3	1.3	..	0.3	..	3.3
3 P. M. . . .	0.3	0.3	..	..	0.7	..	2.0	..	3.3	1.3	17.3	1.0	1.7	..	0.3	..	1.3
6 P. M. . . .	..	..	0.7	..	1.7	..	2.0	0.3	6.3	1.3	11.0	0.3	..	..	..	..	5.7
9 P. M. . . .	2.3	0.3	7.0	0 3	1.3	0.7	2.3	0.3	3.3	..	1.7	0.7	0.7	0.3	2.7	..	6.0
Midnight . .	2.0	0.3	10.3	0.7	2.7	..	2.0	0.7	2.0	..	1.3	..	..	..	2.3	0.7	5.0
MAY.																	
3 A. M. . . .	3.0	1.0	5.0	..	8.0	..	1.0	..	2.0	1.0	1.0	1.0	..	1.0	3.0	..	4.0
6 A. M. . . .	1.7	..	4.3	0.3	1.0	0.7	1.3	0.3	0.7	..	0.7	0.7	..	..	2.0	..	7.7
7 A. M. . . .	..	..	2.0	..	..	0.5	1.0	..	0.5	..	0.5	..	..	..	1.0	0.5	8.0
9 A. M. . . .	0.7	..	5.7	..	2.0	0.3	1.3	0.7	2.0	..	1.7	..	1.7	0.7	3.7	..	10.0
Noon . . .	0.7	..	1.3	..	1.7	..	1.0	..	2.3	1.0	7.7	0.7	3.0	0.3	3.3	0.7	7.3
3 P. M. . . .	..	0.3	1.0	0.3	1.3	..	1.3	1.0	3.0	0.3	14.3	1.3	1.3	0.3	1.0	..	4.0
6 P. M. . . .	..	0.3	4.7	..	5.0	0.3	3.7	0.7	2.3	0.7	1.3	..	0.7	0.3	1.3	0.3	9.0
9 P. M. . . .	2.0	0.3	8.3	0.3	3.3	0.3	0.3	0.7	1 7	..	1.7	0.3	0.3	0.3	2.7	0.7	7.7
Midnight . .	3.3	0.3	11.7	0.3	1.7	0.3	1.0	..	1.0	0.3	1.0	..	0.7	..	4.0	0.3	4.0
JUNE.																	
3 A. M. . . .	3.0	..	2.0	1.0	4.0	..	3.0	..	2.0	1.0	2.0	..	..	1.0	3.0	2:0	6.0
6 A. M. . . .	0.3	..	2.0	0.3	0.3	..	0.3	0.7	0.7	..	0.7	..	..	0.3	1.0	0.3	6.3
7 A. M. . . .	0.5	..	5.5	..	1.0	..	..	0.5	0.5	..	2.0	..	1.0	..	3.0	0:5	10.0
9 A. M. . . .	1.7	..	4.3	0.3	1.7	..	2.0	0.3	2.0	0.3	3.0	..	1.0	..	5.0	0:7	7.7
Noon . . .	0.7	0.3	2.3	..	1.0	..	0.7	0.3	1.7	0.7	8.7	..	1.3	0.3	4.0	0.7	7 3
3 P. M. . . .	1.3	..	1.7	..	1.3	..	1.3	0.3	3.3	0.3	9.0	1.3	1.7	0.3	1.7	0.3	6.0
6 P. M. . . .	1.0	1.3	8.0	0.3	1.3	..	2.0	0.3	2.3	1.3	1.3	0.3	1.3	0.3	1.7	0.3	6.7
9 P. M. . . .	1.0	..	10.3	..	4.3	0.3	..	..	1.0	0.3	..	..	1.0	0.3	2.3	0.3	8.7
Midnight . .	1.7	1.0	10.3	1.0	2.0	0.3	1.0	..	1.7	..	1.0	..	0.3	..	1.7	..	8.0

TABLE XXXIX—Continued.

Month and hour.	North.	N.N.E.	N.E.	E.N.E.	East.	E.S.E.	S.E.	S S.E.	South.	S.S.W.	S.W.	W.S.W.	West.	W.N.W.	N.W.	N.N.W.	Calm.
JULY.																	
3 A. M. . . .	4.0	..	8.0	1.0	2.0	..	3.0	4.0	..	..	..	..	..	..	2.0	4.0	3.0
6 A. M. . . .	..	..	5.0	..	..	1.0	4.0	3.0	..	..	..	..	..	..	5.0	2.0	11.0
7 A. M. . . .	..	0.5	4.5	..	3.5	0.5	2.0	1.5	..	..	..	..	..	..	5.5	0.5	10.0
9 A. M. . . .	1.7	1.0	2.3	0.7	..	..	3.0	1.0	1.3	0.7	2.3	..	1.7	0.3	5.0	0.7	9.3
Noon . . .	0.7	..	2.0	..	1.0	..	1.7	0.3	1.0	0.3	6.0	..	1.7	0.3	6.7	0.3	9.0
3 P. M. . . .	0.7	0.3	1.3	..	2.7	0.7	2.3	0.7	1.7	0.3	8.0	0.7	0.7	..	2.3	2.3	6.3
6 P. M. . . .	1.0	0.3	8.7	1.0	1.3	0.3	1.3	1.7	1.0	1.3	1.3	..	1.7	..	2.3	..	7.0
9 P. M. . . .	0.7	0.7	14.3	0.7	0.7	1.0	0.3	1.0	1.7	..	0.3	..	0.3	..	2.7	0.3	6.0
Midnight . .	1.0	0.7	10.3	..	1.7	0.3	1.0	1.3	1.3	0.3	1.0	0.3	0.3	0.3	3.7	2.0	5.3
AUGUST.																	
3 A. M. . . .	2.0	..	4.0	1.0	1.0	1.0	2.0	3.0	3.0	1.0	1.0	..	..	1.0	5.0	..	6.0
6 A. M. . . .	0.5	0.5	1.0	0.5	0.5	0.5	2.5	1.0	1.0	..	1.0	..	0.5	..	2.0	..	7.5
7 A. M. . . .	1.0	..	5.0	..	3.0	..	2.0	0.5	0.5	0.5	1.5	..	..	..	3.0	..	10.5
9 A. M. . . .	0 7	..	4 0	0.3	0.3	0.3	1.0	1.7	2.0	0.3	4.0	1.3	1.7	0.7	4.3	..	8.3
Noon . . .	0.7	..	0.7	0.3	0.7	0.3	1.0	0.7	1.3	0.3	9.3	1.7	2.0	1.3	3.0	..	7.7
3 P. M. . . .	..	..	1.3	0.3	..	0.3	0.7	1.0	1.0	1.7	12.7	2.0	2.7	..	1.0	..	6.3
6 P. M. . . .	..	0.3	8.3	0.3	0.7	..	1.3	2.7	3.0	2.7	4.0	1.0	0.3	0.3	1.7	0.3	4.0
9 P. M. . . .	1.3	..	10.0	0.3	3.0	0.3	0.3	0.7	1.7	1.3	1.7	..	0.7	0.3	2.0	..	6.7
Midnight . .	2.0	..	10.7	0.3	1.3	0.7	1.0	0.7	1.7	1.0	1.0	..	0.7	0.3	4.3	0.7	4.7
SEPTEMBER.																	
3 A. M. . . .	2.0	2.0	2.0	..	..	2.0	2.0	1.0	2 0	..	..	1.0	..	..	1.0	..	2.0
6 A. M. . . .	0.5	..	4.0	..	1.5	..	2.0	1.0	..	1.0	1.5	..	..	0.5	4.0	..	8.5
7 A. M. . . .	..	..	1.0	..	0.5	..	1.0	..	..	0.5	2.0	0.5	..	0.5	2.5	..	3.0
9 A. M. . . .	..	..	4.0	..	0.3	0.3	2.0	0.7	1.0	1.0	4.7	1.0	1.3	0.3	3.0	0.3	4.3
Noon . . .	..	..	0.7	0.3	0.7	1.0	1.3	..	1.0	0.7	9.3	1.3	2.3	0.3	2.0	..	3.0
3 P. M. . . .	..	..	1.0	..	0.3	0.7	0.7	0.7	2.3	1.7	13.0	1.0	0.7	..	0.3	..	1.7
6 P. M. . . .	..	..	1.0	..	1.0	..	1.7	1.3	3.7	3.3	2.3	1.0	..	0.3	0.7	..	1.0
9 P. M. . . .	..	0.3	5.0	1.3	1.0	0.3	0.7	1.3	0.3	0.7	3.3	0.3	0.3	..	3.0	..	7.0
Midnight . .	1.3	..	7.7	1.0	1.3	..	..	1.0	1.0	0.3	1.3	0.3	1.3	0.3	3.3	..	3.3
OCTOBER.																	
3 A. M. . . .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6 A. M. . . .	0.5	..	3.0	..	0.5	0.5	0.5	0.5	1.0	..	1.5	1.5	0.5	..	3.0	..	13.0
7 A. M. . . .	..	..	3.0	..	..	..	..	..	..	..	1.0	..	..	..	..	..	2.0
9 A. M. . . .	0.5	0.5	3.5	..	..	..	1.5	..	1.5	0.5	6.5	0.5	4.0	3.5	3.5	..	5.0
Noon . . .	..	..	0.5	..	0.5	..	3.5	0.5	0.5	1.5	12.0	5.0	2.0	2.0	1.0	0.5	1.5
3 P. M. . . .	..	..	..	1.0	..	..	0.5	..	..	4.0	18.0	4.5	0.5	1.5	0.5	..	0.5
6 P. M. . . .	..	..	1.0	..	..	..	2.5	1.0	2.0	2.5	15.5	4.5	1.0	0.5	..	..	0.5
9 P. M. . . .	1.0	1.0	4.5	1.5	2.0	..	1.5	..	2.0	0.5	4.0	2.0	2.0	..	1.0	..	7.0
Midnight . .	3.0	1.0	6.5	..	..	..	1.0	0.5	0.5	0.5	2.5	1.5	..	1.0	6.0	0.5	5.5
NOVEMBER.																	
3 A. M. . . .	1.0	..	..	..	1.0	..	..	..	2.0	..	1.0	..	2.0	..	1.0	..	3.0
6 A. M. . . .	1.0	..	3.3	..	0.3	0.3	0.7	..	1.3	..	1.3	0 3	1.7	..	1.3	..	9.3
7 A. M. . . .	..	..	2.0	..	..	..	1.0	..	..	..	..	..	1.0	..	1.0	..	1.0
9 A. M. . . .	1.0	0.3	2.0	..	..	0.7	1.7	..	1.7	..	6.7	2.3	3.3	0.3	1.3	..	3.0
Noon . . .	..	..	0.7	0.3	..	0.3	1.7	..	2.0	1.0	11.0	3.7	1.7	..	0.7	..	1.3
3 P. M. . . .	..	..	0.7	..	0.3	..	1.3	0.7	1.3	1.7	12.3	3.7	1.3	..	0.7	..	0.3
6 P. M. . . .	..	..	..	..	0.3	..	0.3	..	1.3	1.3	16.0	2.7	1.3	..	..	..	0.7
9 P. M. . . .	..	..	3.3	..	1.7	0.3	1.3	..	3.0	1.0	6.3	1.3	0.7	..	0.7	..	4.3
Midnight . .	0.3	0.7	2.3	..	1.0	..	1.7	0.7	1.0	0.3	1.7	0 7	1.3	..	5.3	1.3	6.0
DECEMBER.																	
3 A. M. . . .	4.0	1.0	1.0	..	..	..	3.0	..	3.0	1.0	3.0	..	2.0	..	5.0	..	7.0
6 A. M. . . .	1.0	..	2.7	..	..	..	..	0.3	1.7	0.3	2.7	..	0.7	0.3	2.3	0.3	12.7
7 A. M. . . .	..	..	4.0	..	1.0	..	..	..	1.0	..	..	2.0	2.0	..	..	1.0	5.0
9 A. M. . . .	1.3	..	3.7	..	0.7	..	0.3	0.3	0.3	1.3	11.0	0.3	3.7	..	0.3	..	7.7
Noon . . .	..	..	0.3	..	..	..	0.3	0.3	1.0	2.7	21.7	1.0	2.0	..	..	..	1.3
3 P. M. . . .	..	..	0.3	..	..	..	..	0.7	2.3	1.7	21.3	2.0	2.0	..	0.3	..	0.3
6 P. M. . . .	..	..	..	..	..	..	0.3	..	2.3	3.3	19.0	2.3	2.0	..	0.7	..	1.0
9 P. M. . . .	0.3	..	4.7	1.0	3.0	0.7	1.0	..	7.0	1.7	3.3	..	1.7	0.3	1.3	..	4.7
Midnight . .	1.7	0.3	3.7	..	1.0	..	3.0	0.7	2.0	0.3	2.3	..	2.7	..	5.7	1.3	6.3

TABLE XL

Showing the prevailing wind at each observation hour of the several months.

Month.	3 A. M.	6 A. M.	7 A. M.	9 A. M.	Noon.
January	North	Calm	Northeast	Southwest	Southwest.
February		Calm		Southwest	Southwest.
March	North	N.E. and calm	Northwest	Southwest	Southwest.
April	Northeast	Northeast	Calm	Northeast	Southwest.
May	East	Calm	Calm	Calm	Southwest.
June	Calm	Calm	Calm	Calm	Southwest.
July	Northeast	Calm	Calm	Calm	Calm.
August	Calm	Calm	Calm	Calm	Southwest.
September	N'd & E'd; S'd & E'd	Calm	Calm	Southwest	Southwest.
October		Calm	Northeast	Southwest	Southwest.
November	Calm	Calm	Northeast	Southwest	Southwest.
December	Calm	Calm	Calm	Southwest	Southwest.

Month.	3 P. M.	6 P. M.	9 P. M.	Midnight.
January	Southwest	Southwest	Southwest	Calm.
February	Southwest	Southwest	Northeast	Northeast.
March	Southwest	Southwest	Northeast	N., N.E., and N.W.
April	Southwest	Southwest	Northeast	Northeast.
May	Southwest	Calm	Northeast	Northeast.
June	Southwest	Northeast	Northeast	Northeast.
July	Southwest	Northeast	Northeast	Northeast.
August	Southwest	Northeast	Northeast	Northeast.
September	Southwest	Southwest	Calm	Northeast.
October	Southwest	Southwest	Calm	Northeast.
November	Southwest	Southwest	Southwest	Calm.
December	Southwest	Southwest	South	Calm.

TABLE XLI.

Showing the number of days in each month during which the wind blew with a certain force.

1849.

Month.	3 A. M.										
	0	1	2	3	4	5	6	7	8	9	10
November*	3	8	1								
December	7	21	3								
Sums	10	29	4								

* There were observations only on fourteen days of November.

TABLE XLI—Continued.

1849.

Month.	6 A. M.										
	0	1	2	3	4	5	6	7	8	9	10
November*	6	5	..	1							
December	15	16									
Sums	21	21	..	1							

Month.	9 A. M.										
	0	1	2	3	4	5	6	7	8	9	10
November*	1	11	..	1							
December	7	22	2								
Sums	8	33	2	1							

Month.	Noon.										
	0	1	2	3	4	5	6	7	8	9	10
November*	1	5	6	1							
December	1	15	13	1							
Sums	2	20	19	2							

Month.	3 P. M.										
	0	1	2	3	4	5	6	7	8	9	10
November*	..	4	6	4							
December	2	3	18	9							
Sums	1	7	24	13							

Month.	6 P. M.										
	0	1	2	3	4	5	6	7	8	9	10
November*	1	3	10								
December	..	15	14	2							
Sums	1	18	24	2							

* There were observations on only fourteen days of November.

TABLE XLI—Continued.

1849.

Month.	9 P. M.										
	0	1	2	3	4	5	6	7	8	9	10
November*	4	7	2	1							
December	2	26	3								
Sums	6	33	5	1							

Month.	MIDNIGHT.										
	0	1	2	3	4	5	6	7	8	9	10
November*	6	4	4								
December	4	25	2								
Sums	10	29	6								

1850.

Month.	3 A. M.										
	0	1	2	3	4	5	6	7	8	9	10
†January	4	16	2								
‡February											
§March	1	14	2	1							
April	1	23	5	1							
May	4	18	7	2							
June	6	14	7	..	1	1	1				
July	3	12	7	6	..	3					
August	6	15	6	4							
‖September	2	9	3	1	2						
October											
November											
December											
Sums	27	121	39	15	3	4	1				

* There were observations on only fourteen days of November.
† Nine days of January not observed.
‡ But one day in February observed.
§ Thirteen days of March not observed; twelve of which were consecutive days.
‖ 17th of September closes the observations at this hour.

TABLE XLI—Continued.

1850.

Month.	6 A. M.										
	0	1	2	3	4	5	6	7	8	9	10
January	9	20									
February	1	26	1								
March	4	24	2	1							
April	4	21	3	1	1						
May	12	11	4	2	..	2					
June	14	9	3	..	2	1	..	..	1		
July	11	10	8	2							
August	15	10	3	2	..	1					
September	5	23	1	..	1						
October	15	14	1								
November	14	14									
December	20	11									
Sums	134	193	26	8	4	4	..	..	1		

Month.	9 . M.										
	0	1	2	3	4	5	6	7	8	9	10
January	3	26	1	1							
February	..	26	2								
March	1	26	4								
April	1	22	6	1							
May	3	23	3	..	..	1					
June	7	20	1	..	1	1					
July	9	17	4	1							
August	7	19	4	1							
September	3	21	4	1	..	1					
October	8	19	4								
November	4	21	5								
December	14	15	2								
Sums	60	255	40	5	1	3					

Month.	NOON.										
	0	1	2	3	4	5	6	7	8	9	10
January	1	13	10	6	1						
February	..	12	11	4	1						
March	..	11	9	8	2	1					
April	1	18	5	3	1	2					
May	6	19	3	..	3						
June	8	16	4	2							
July	14	12	5								
August	11	15	4	..	..	1					
September	4	15	5	5							
October	1	14	8	5	3						
November	2	9	14	2	3						
December	3	14	7	4	2		1				
Sums	51	168	85	39	16	4	1				

TABLE XLI—Continued.

1850.

Month.	3 P. M.										
	0	1	2	3	4	5	6	7	8	9	10
January	..	4	8	13	4	1	1				
February	..	1	8	9	6	2	2				
March	..	..	10	10	4	..	6	1			
April	..	10	9	7	2	1	..	1			
May	2	23	4	1	1						
June	6	15	7	1	..	..	..	..	1		
July	5	17	7	..	1	..	..	1			
August	8	14	5	2	1	1					
September	2	18	5	2	..	2					
October	..	8	3	12	7	1					
November	1	5	7	11	5	1					
December	..	4	7	10	7	1	2				
Sums	94	119	80	78	38	10	11	3	1		

Month.	6 P. M.										
	0	1	2	3	4	5	6	7	8	9	10
January	..	8	11	10	2						
February	..	..	10	17	1						
March	..	11	10	7	2	..	1				
April	4	19	4	3							
May	11	16	2	..	..	1	1				
June	6	16	5	2	..	1					
July	3	19	8								
August	4	19	7	1							
September	..	22	4	3	1						
October	1	10	10	5	2	1	1				
November	1	5	12	10	1						
December	2	6	13	8	1	1					
Sums	32	151	96	66	10	4	3				

Month.	9 P. M.										
	0	1	2	3	4	5	6	7	8	9	10
January	1	21	5								
February	1	21	4	1	1						
March	3	23	3	1							
April	5	23	2								
May	8	20	2	..	1						
June	8	19	7	1	2						
July	7	17	6	1							
August	9	15	4	2	1						
September	7	17	4	1	..	1					
October	4	15	6	3	1	1					
November	2	18	8	2							
December	6	20	2	1	1						
Sums	61	223	53	13	7	2					

TABLE XLI—Continued.

1850.

Month.	MIDNIGHT.										
	0	1	2	3	4	5	6	7	8	9	10
January	5	17	7	1	1						
February	3	22	2	..	1						
March	..	19	8	3							
April	2	26	1	1							
May	5	19	4	3							
June	8	9	7	3	2	..	..	1			
July	8	13	4	5	1						
August	9	10	8	2	2						
September	2	18	6	4							
October	6	12	7	4							
November	5	16	7	2							
December	9	18	3	1							
Sums	62	199	64	29	7	..	..	1			

1851.

Month.	*6 A. M.										
	0	1	2	3	4	5	6	7	8	9	10
January	23	7									
February	26	2									
March†	5										
April‡	3	8									
May	4	6	2								
June	3	..	1								
July											
August											
September	12	7									
October	11	11									
November	8	14	..	1							
December	3	9	..	1							
Sums	98	64	3	2							

* During the year 1851 the observations were made irregularly at the hours of 6 and 7 A. M.

† Five first days only observed at this hour.

‡ Eleven days of April were observed at 6 and seven at 7 A. M.

TABLE XLI—Continued.

1851.

Month.	*7 A. M.										
	0	1	2	3	4	5	6	7	8	9	10
January											
February											
March											
April*	4	3									
May	11	6	1								
June	15	8	2								
July	16	6	2	3	1	..	1				
August	17	11	1	..	..	..	1				
September	2	7	1								
October	2	3	1								
November	1	5									
December	5	10	1								
Sums	73	59	9	3	1	..	2				

Month.	9 A. M.										
	0	1	2	3	4	5	6	7	8	9	10
January	17	12	1	1							
February	12	12	2	1	1						
March	3	26	2								
April	4	20	5	1							
May	11	17	2								
June	14	10	2	4							
July	14	13	1	2	..	..	1				
August	13	13	3	2							
September	7	19	3	1							
October	2	23	6								
November	4	24	2								
December	2	28	1								
Sums	103	217	30	12	1	..	1				

Month.	NOON.										
	0	1	2	3	4	5	6	7	8	9	10
January	..	9	7	12	2	1					
February	2	10	8	7	1						
March	1	20	10								
April	4	14	8	3							
May	11	15	3	1	..	1					
June	11	14	4	1							
July	11	16	3	1							
August	11	15	3	2							
September	4	20	6								
October	2	15	12	1	1						
November	1	16	7	6							
December	..	10	14	6	1						
Sums	58	174	85	40	5	2					

* Eleven days of April were observed at 6 and seven at 7 A. M.

TABLE XLI—Continued.

1851.

Month.	3 P. M.										
	0	1	2	3	4	5	6	7	8	9	10
January	..	4	9	14	6	5					
February	1	2	1	12	8	2	1	..	1		
March	1	5	14	10	1						
April	3	11	6	7	2						
May	7	22	2								
June	10	13	7								
July	13	11	3	2	2						
August	9	12	8	2							
September	2	14	6	6	2						
October	1	12	8	8	1	1					
November	..	9	10	7	2	1					
December	..	5	8	10	6	2					
Sums	47	120	75	78	30	11	1	..	1		

Month.	6 P. M.										
	0	1	2	3	4	5	6	7	8	9	10
January	..	3	9	14	5						
February	1	2	11	6	8						
March	2	9	16	4							
April	7	12	7	2	1						
May	11	17	2								
June	10	16	2	2							
July	11	15	3	1							
August	4	19	5	1	2						
September	2	23	4	1							
October	..	17	11	2	1						
November	..	18	5	5	1						
December	1	10	6	11	3						
Sums	49	161	81	49	21						

Month.	9 P. M.										
	0	1	2	3	4	5	6	7	8	9	10
January	6	22	..	9	1						
February	8	17	2	1							
March	6	21	4								
April	7	13	6	3	1						
May	8	18	4	1							
June	10	18	..	2							
July	6	18	4	1	1	..	1				
August	6	18	3	3							
September	12	11	3	3							
October	10	17	3	1							
November	7	16	3		1	..	1				
December	6	20	3	1		1					
Sums	98	209	36	18	4	1	2				

TABLE XLI—Continued.

1851.

Month.	MIDNIGHT.										
	0	1	2	3	4	5	6	7	8	9	10
January	8	17	2	2	..	2					
February	9	17	2	..							
March	4	18	7	2							
April	4	16	8	2							
May	3	19	7	..							
June	10	14	2	4							
July	5	18	5	2	..	..	1				
August	2	24	2	3							
September	6	15	5	2	2						
October	5	20	4	2							
November	8	17	3	..	1						
December	6	21	3	..		1					
Sums	70	216	50	19	3	3	1				

1852.

Month.	*6 A. M.										
	0	1	2	3	4	5	6	7	8	9	10
January	6	5	1								
February	14	13									
March	10	16									
April	5	14									
May	7	13	..	1							
June	2	2	..	2							
July											
August	1	6									
September											
Sums	45	69	1	3							

Month.	*7 A. M.										
	0	1	2	3	4	5	6	7	8	9	10
January	3	12									
February											
March	1	3	1								
April	2	9									
May	5	5									
June	5	18	..	..	1						
July	3	23	1								
August	4	17	2	..	1						
September	4	9									
Sums	27	96	4	..	2						

* During the year 1852 the observations were made irregularly at the hours of 6 and 7 A. M.

TABLE XLI—Continued.

1893.

Month.	9 A. M.										
	0	1	2	3	4	5	6	7	8	9	10
January	3	26	2								
February	2	24	3								
March	3	25	1	1	1						
April	6	24									
May	16	13	1	1							
June	2	25	1	2							
July	5	22	3	1							
August	5	25	1								
September	3	9	..	1							
Sums	45	193	12	6	1						

Month.	NOON.										
	0	1	2	3	4	5	6	7	8	9	10
January	..	12	6	12	..	1					
February	..	7	9	12	1						
March	..	13	13	5							
April	5	21	3	1							
May	5	21	2	3							
June	3	25	2								
July	2	28	..	1							
August	1	27	..	3							
September	1	9	2	1							
Sums	17	163	37	38	1	1					

Month.	3 P. M.										
	0	1	2	3	4	5	6	7	8	9	10
January	..	2	7	14	6	1					
February	..	1	4	21	3						
March	..	2	9	18	2						
April	1	13	7	7	2						
May	3	23	2	3							
June	2	23	2	2	1						
July	1	27	3								
August	2	21	4	2	2						
September	1	8	3	1							
Sums	10	120	41	68	16	1					

TABLE XLI—Continued.

1852.

Month.	6 P. M.										
	0	1	2	3	4	5	6	7	8	9	10
January	..	7	11	10	..	1					
February	..	8	14	7							
March	2	15	9	5							
April	6	18	2	3							
May	6	23	2	1							
June	4	20	2	3	1						
July	7	21	1	2							
August	4	25	1	1							
September	1	11	1								
Sums	29	148	43	32	1	1					

Month.	9 P. M.										
	0	1	2	3	4	5	6	7	8	9	10
January	7	24									
February	4	19	4	2							
March	5	21	3	1	1						
April	6	23		1							
May	7	22	2								
June	8	20	2								
July	5	21	2	2							
August	5	22	1	1	1						
September	2	9	2	..							
Sums	49	181	16	7	2						

Month.	MIDNIGHT.										
	0	1	2	3	4	5	6	7	8	9	10
January	12	17	2								
February	3	19	6	1							
March	9	21									
April	9	20	1								
May	4	24	2								
June	6	19	2	2	1						
July	3	22	3	2	1						
August	3	23	2	3							
September	3	8	1	1							
Sums	52	173	19	9	2						

TABLE XLII.

Monthly means of the force of the wind at each hour of observation.

Month and year.	3 A. M.	6 A. M.	7 A. M.	9 A. M.	Noon.	3 P. M.	6 P. M.	9 P. M.	Midnight.	Daily mean of each year.	Daily mean of three y'rs.
November . . . 1849	*a* 0.83	*a* 0.66		*b* 1.08	*b* 1.54	*c* 2.00	*c* 1.65	*c* 1.00	*c* 0.86	* 1.20	
1850		*d* 0.50		1.03	1.83	2.57	*e* 2.17	1.33	1.20	1.52	1.38
1851		*f* 0.74	*g* 0.83	0.93	1.60	*e* 2.17	*e* 1.62	*d* 1.14	0.93	1.24	
December . . . 1849	0.87	0.52		0.84	h 1.47	3.14	1.58	1.03	0.94	1.30	
1850		0.36		0.61	1.74	3.00	2.10	h 1.03	0.90	1.39	1.38
1851		*b* 0.92	*i* 0.74	0.97	1.89	2.74	2.16	1.10	1.03	1.44	
January 1850	*k* 0.91	0.69		1.00	1.77	2.77	2.19	*l* 1.15	1.23	1.46	
1851		h 0.23		0.55	2.32	3.19	2.70	1.03	1.19	1.60	1.49
1852		*a* 0.58	*m* 0.80	0.97	2.10	h 3.23	2.21	0.77	0.68	1.42	
February . . . 1850		1.00		1.07	1.80	3.21	2.68	1.29	1 07	1.51	
1851		0.07		0.82	2.18	3.43	2.64	0.87	0.75	1.54	1.54
1852		*l* 0.50		1.03	2.94	2.90	1.97	1.14	1.17	1.56	
March 1850	1.17	1.00		1.10	2.29	3.52	2.13	h 1.07	h 1.47	1.72	
1851		*o* 0.00		0.97	1.29	2.16	1.71	0.93	1.23	1.18	1.40
1852		*n* 0.62	*o* 1.00	1.10	1.74	2.65	1.55	1.10	h 0.70	1.31	
April 1850	1.20	1.12		1.23	1.70	2.30	1.20	0.90	1.03	1.33	
1851		*p* 0.73	*q* 0.43	1.10	*e* 1.34	*e* 1.80	*e* 1.24	1.27	1.27	1.15	1.16
1852		*r* 0.73	*p* 0.82	0.80	1.00	1.87	*e* 1.07	0.87	0.73	0.99	
May 1850	1.23	1.13		1.13	1.20	1.23	1.00	0.90	1.16	1.12	
1851		*a* 0.83	*s* 0.44	h 0.70	0.94	0.84	0.70	0.93	1.14	*e* 0.81	0.93
1852		*k* 0.76	*t* 0.50	0.60	1.10	1.16	0.97	0.84	0.93	0.86	
June 1850	1.43	*u* 0.97		1 03	1.00	1.33	1.23	1.23	1.57	1.22	
1851		0.50	*v* 0.50	0.87	0.83	0.90	0.87	0.80	1.00	0.80	1.06
1852		*g* 1.33	*c* 1.57	1.10	0.97	1.23	1.23	0.80	1.10	1.17	
July 1850	1.20	1.03		0.90	0.71	1.36	h 1.17	1.03	1.30	1.17	
1851			*e* 1.00	0.87	0.81	1.00	h 0.80	1.26	1.29	1.00	1.07
1852			*l* 0.93	1.00	1.00	1.06	0.94	1.03	1.23	1.03	
August 1850	1.26	0.73		0.97	0.90	1.26	1.16	1.03	1.30	1.08	
1851			h 0.63	0.81	0.87	1.10	1.29	h 1.10	1.19	1.00	1.05
1852		*q* 0.86	*v* 1.04	0.87	1.16	1.39	0.97	1.03	1.16	1.06	
September . . . 1850	1.30	0.97		1.23	1.39	*e* 1.52	1.43	1.10	1.40	1.29	
1851		*r* 0.37	*t* 0.90	0.93	1.07	1.73	1.13	*e* 0.90	1.30	1.04	1.12
1852			*b* 0.70	*b* 0.92	*b* 1.23	*b* 1.31	*b* 1.00	*b* 1.00	*b* 1.00	1.02	
October 1850		0.53		0.87	1.84	2.68	h 2.13	h 1.50	*e* 1.31	1.55	
1851		*w* 0.50	*g* 0.83	1.13	1.48	1.97	1.58	0.84	1.10	1.18	1.36
Annual mean . 1850		0.84		1.01	1.51	2.23	1.72	1.13	1.24	1.36	1.24
1851				0.89	1.39	1.92	1.54	1.01	1.12	1.16	
Mean of two years .				0.95	1.45	2.07	1.63	1.07	1.18	1.26	

a Twelve observations.
b Thirteen observations.
c Fourteen observations.
d Twenty-eight observations.
e Twenty-nine observations.
f Twenty-three observations.
g Six observations.
h Thirty observations.
i Sixteen observations.
k Twenty-one observations.
l Twenty-seven observations.
m Fifteen observations.
n Twenty-six observations.
o Five observations.
p Eleven observations.
q Seven observations.
r Nineteen observations.
s Eighteen observations.
t Ten observations.
u Four observations.
v Twenty-five observations.
w Twenty-two observations.
* Rejected in mean of three years.

TABLE XLIII.

Quarterly and annual means of the force of the wind.

Year and month.	3 A. M.	6 A. M.	7 A. M.	9 A. M.	Noon.	3 P. M.	6 P. M.	9 P. M.	Midnight.	Daily means.
December 1849										
January 1850	0.89	0.74		0.97	1.68	3.04	2.15	1.16	1.08	1.47
February 1850										
December 1850										
January 1851		0.22		0.66	2.08	3.21	2.48	0.98	0.91	1.51
February 1851										
December 1851										
January 1852		0.67	0.77	0.99	2.08	2.96	2.11	1.00	0.96	1.44
February 1852										
Mean of summer	0.89	0.54	0.77	0.87	1.95	3.07	2.25	1.05	0.98	1.37
March 1850										
April 1850	1.20	1.08		1.15	1.73	2.35	1.44	0.96	1.22	1.39
May 1850										
March 1851										
April 1851		0.52	0.43	0 92	1.19	1.60	1.22	1.04	1.21	1.02
May 1851										
March 1852										
April 1852		0.70	0.77	0.83	1.28	1.89	1.20	0.94	0.79	1.05
May 1852										
Mean of autumn	1.20	0.77	0.60	0.77	1.40	1.95	1.29	0.98	1.07	1.11
June 1850										
July 1850	1.53	0.91		0.97	0.87	1.32	1.19	1.10	1.39	1.16
August 1850										
June 1851										
July 1851		0.50	0.71	0.85	0.84	1.00	0.99	1.05	1.16	0.89
August 1851										
June 1852										
July 1852		1.09	1.18	0.99	1.04	1.23	1.05	0.95	1.16	1.09
August 1852										
Mean of winter	1.53	0.83	0.94	0.94	0.92	1.18	1.08	1.03	1.24	1.09
November 1849*	0.83	0.66		1.08	1.54	2.00	1.65	1.00	0.86	
September 1850										
October 1850	1.30	0.67		1.04	1.69	2.26	1.91	1.31	1.30	1.44
November 1850										
September 1851										
October 1851		0.54	0.65	1.00	1.38	1.96	1.44	0.96	1.11	1.15
November 1851										
September 1852*			0.70	0.92	1.23	1.31	1.00	1.00	1.00	
Mean of spring	1.30	0.60	0.85	1.02	1.53	2.11	1.67	1.13	1.20	1.25
Mean of 1850	1.23	0.84		1.03	1.49	2.24	1.69	1.13	1.25	1.36
Mean of 1851		0.44		0.86	1.37	1.94	1.53	1.01	1.10	1.14
Mean of two years		0.64		0.94	1.43	2.09	1.61	1.07	1.18	1.25

* Observations not used in obtaining the means.

TABLE XLIV.

Showing the mean portion of the sky obscured by clouds at the several observation hours of each month.

Year and month.	3 A. M.	6 A. M.	7 A. M.	9 A. M.	Noon.	3 P. M.	6 P. M.	9 P. M.	Midnight.	Daily mean of each year.	Daily mean of three y'rs.
November . . . 1849	*a* .142	*a* .142		*b* .211	*b* .204	*b* .236	*b* .240	*b* .173	*b* .093	* .180	
1850		*c* .458		.373	.310	.313	.367	.307	.310	.348	.400
1851		*d* .452	*e* .625	.497	.417	*c* .441	*c* .380	*f* .368	*c* .446	.453	
December . . . 1849	.116	.194		.194	*g* .220	.216	.177	.119	.116	.169	
1850		.516		.440	.413	.378	.355	*g* .277	.307	.384	.277
1851		*a* .356	*h* .250	.307	.277	.249	.261	.229	.300	.279	
January 1850	*i* .118	*c* .117		.107	.135	.213	.229	*c* .073	.100	.136	
1851		*g* .300		.307	.270	.252	.236	.152	.161	.240	.181
1852		*a* .170	*k* .347	.187	.119	*g* .127	*c* .155	.094	.119	.168	
February . . . 1850		.186		.168	.150	.221	.190	.068	.057	.147	
1851		.203		.193	.153	.129	.136	.114	.090	.145	.148
1852		*f* .125		.180	.128	.138	.159	.180	.165	.153	
March 1850	*l* .123	.110		.094	.113	.129	.123	.052	.048	.099	
1851		*m* .400		.371	.184	.249	.323	.194	.255	.283	.161
1852		.171	*e* .000	.126	.142	.132	.113	.045	.073	.100	
April 1850	.277	.457		.420	.410	.353	.327	.207	.240	.335	
1851		*n* .300	*o* .850	.587	.540	.493	.553	.503	.540	.608	.454
1852		*p* .321	*n* .600	.403	.430	.423	.452	.363	.370	.420	
May 1850	.588	.645		*g* .607	.655	.677	.623	.548	.548	.611	
1851		*a* .558	*h* .400	*g* .527	.513	.616	*g* .467	.423	.413	.480	.546
1852		.596	*q* .610	.590	.577	.594	.499	.458	.471	.548	
June 1850	.633	.780		.807	.753	.770	.737	.633	.657	.721	
1851		*r* .600	*s* .685	.540	.617	.570	.507	.517	.560	.574	.685
1852		*m* .929	*s* .929	.747	.693	.693	.737	.707	.647	.760	
July 1850	.642	.645		.671	.684	.642	.571	.587	.602	.630	
1851			*t* .910	.923	.900	.877	.890	.794	.703	.847	.674
1852			*t* .541	.568	.616	.545	.499	.530	.523	.544	
August 1850	.597	.703		.713	.584	.620	.545	.545	.481	.598	
1851			*f* .600	.594	.613	.603	.623	.539	.490	.580	.586
1852		*o* .600	.650	.645	.603	.552	.542	*g* .513	*g* .537	.580	
September . . . 1850	*u* .418	.670		.687	*c* .615	*c* .615	.553	.473	.560	.574	
1851		*k* .773	*o* .871	.647	.497	.587	.590	*c* .534	.503	.625	.525
1852			*l* .477	*l* .523	*l* .438	*l* .315	*l* .246	*l* .207	*l* .423	.376	
October 1850		*g* .383		.400	.379	.348	*g* .359	*g* .347	*g* .359	.368	.406
1851		*v* .509	.440	.513	.439	.436	.445	.374	.397	.444	
Annual means . . 1850		.472		.457	.433	.440	.415	.343	.356	.413	.420
1851				.501	.452	.458	.445	.395	.396	.463	
Mean of two years . .				.479	.442	.449	.430	.369	.376	.438	

a Twelve observations.
b Fourteen observations.
c Twenty-nine observations.
d Twenty-five observations.
e Four observations.
f Twenty eight observations.
g Thirty observations.
h Eighteen observations.
i Twenty-two observations.
k Fifteen observations.
l Thirteen observations.
m Five observations.
n Eleven observations.
o Seven observations.
p Nineteen observations.
q Ten observations.
r Six observations.
s Twenty-four observations.
t Twenty-seven observations.
u Seventeen observations.
v Twenty-three observations.

* Rejected in mean of three years.

TABLE XLV.

Portion of the sky obscured by clouds in quarterly and annual periods.

Month and year.	3 A. M.	6 A. M.	7 A. M.	9 A. M.	Noon.	3 P. M.	6 P. M.	9 P. M.	Midnight.	Daily mean.
December 1849										
January 1850	.117	.166		.156	.168	.217	.199	.087	.133	.156
February 1850										
December 1850										
January 1851		.340		.313	.279	.253	.242	.181	.186	.256
February 1851										
December 1851										
January 1852		.217	.298	.225	.175	.171	.192	.168	.195	.205
February 1852										
Mean of summer	.117	.241	.298	.231	.207	.214	.211	.145	.171	.204
March 1850										
April 1850	.329	.404		.374	.393	.386	.358	.269	.279	.349
May 1850										
March 1851										
April 1851		.419	.625	.496	.412	.453	.448	.373	.403	.454
May 1851										
March 1852										
April 1852		.359	.403	.373	.383	.383	.355	.289	.305	.356
May 1852										
Mean of autumn	.329	.394	.514	.414	.396	.407	.387	.310	.329	.387
June 1850										
July 1850	.624	.709		.730	.674	.677	.618	.588	.580	.650
August 1850										
June 1851										
July 1851		.600	.732	.686	.710	.683	.650	.617	.584	.658
August 1851										
June 1852										
July 1852		.764	.707	.652	.637	.597	.593	.583	.569	.638
August 1852										
Mean of winter	.624	.691	.719	.690	.674	.652	.620	.596	.578	.649
November 1849*	.142	.142		.211	.204	.236	.240	.173	.093	
September 1850										
October 1850	.418	.504		.487	.435	.425	.426	.376	.410	.435
November 1850										
September 1851										
October 1851		.578	.645	.552	.451	.488	.472	.425	.449	.507
November 1851										
September 1852*			.477	.523	.438	.315	.246	.207	.423	
Mean of spring	.418	.541	.645	.519	.443	.456	.449	.400	.429	.478
Mean of 1850	.372	.446		.437	.417	.426	.400	.330	.350	.397
Mean of 1851		.484		.512	.463	.469	.453	.399	.405	.469
Mean of two years		.465		.474	.440	.447	.426	.364	.377	.433

* Observations not used in obtaining the means.

TABLE XLVI.

Aggregate fall of rain in each month, with the monthly and annual means from the same.

Month.	1849.	1850.	1851.	1852.	Monthly means.
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*
January				0.110	0.110
February			0.620		0.620
March		2.040	0.352		1.196
April		0.145	4.345	0.601	1.697
May		11.679	5.710	4.091	7.160
June		14.452	2.401	10.257	9.037
July		9.137	17.356	4.646	10.380
August		2.265	2.308	8.992	4.522
September		5.398	3.033	0.807	3.079
October		4.280	1.516		2.898
November		4.758	1.625		3.192
December		1.590	0.455		1.023
Annual amount		55.744	39.721		44.914